

NUTTALL (Z.)

ARCHÆOLOGICAL AND ETHNOLOGICAL PAPERS
OF THE
PEABODY MUSEUM.

—Harvard University—

VOL. I. No. 1.

STANDARD OR HEAD-DRESS?

AN HISTORICAL ESSAY ON A RELIC OF

ANCIENT MEXICO.

BY
ZELIA NUTTALL,
Special Assistant of the Peabody Museum.

WITH THREE COLORED PLATES.

CAMBRIDGE, MASS.
PEABODY MUSEUM OF AMERICAN
ARCHÆOLOGY AND ETHNOLOGY.
OCTOBER, 1888.



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PREFATORY NOTICE.

THE Trustees of the Peabody Museum of American Archaeology and Ethnology have decided to issue such special papers as have heretofore been published in connection with the Annual Reports in a separate form, but of uniform octavo size with the Reports. The first number of the series is herewith published and others will follow at irregular intervals as the means for printing them is obtained.

The numbers will be paged consecutively to the end of a volume. Each number will be sold separately at specified prices, varying according to the number of pages and illustrations, but subscriptions will be received in sums of ten dollars or over, and subscribers thus aiding the publication by such advance payments will receive the numbers by mail as soon as issued, at a discount of twenty per cent on the specified price of the numbers.

As the Museum is without a special fund for publication it is hoped that with the aid of such a system of subscriptions it will be able to publish a series of papers upon archæological and ethnological subjects which will prove of value to students and creditable to the Museum.

The Annual Reports will be issued as heretofore, but with the omission of the papers which have usually accompanied them.

The manuscript by Mrs. Nuttall, here printed as the first number of the Papers of the Museum, was prepared after

an examination of the unique piece of feather-work dating from the time of the conquest of Mexico and now preserved in the Imperial Ethnological Collection in Vienna. At the solicitation of friends in Vienna and Dresden, a German translation of the paper was made for publication in the *Abhandlungen und Berichte des K. Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden*.

It will be noticed that while the interesting piece of feather-work sent to Europe during the time of Cortés is made the subject of the paper, the importance of the dissertation is in the bearing which it has upon the customs of the Mexicans in relation to their singular head-dresses and insignia, and upon the interpretation of the ancient Mexican picture-writings, in the study of which Mrs. Nuttall has made such remarkable progress and has obtained such important results, an intimation of which is given in the appendix to the present paper, in the note upon the complementary signs of the Mexican graphic system.

F. W. PUTNAM,

CURATOR OF THE MUSEUM.

CAMBRIDGE, MASS.,

MARCH 31, 1888.

STANDARD OR HEAD-DRESS?

To the distinguished scholar, the late Professor Ferdinand von Hochstetter, we owe a debt of gratitude for the preservation of the unique specimen of ancient Mexican feather-work which will be exhibited eventually as one of the gems of the rich ethnological collection in the newly erected Imperial Museum of Natural History in Vienna.

In 1878, his attention was directed to its former presence at the Belvidere Museum by a notice in Baron von Sacken's descriptive catalogue of the Imperial Ambras collection printed in Vienna in 1855, wherein, among rare objects from various parts of the world, it is mentioned as follows: "No. 3—A Mexican head-dress about 3 ft. in height composed of magnificent green feathers with golden-hued lustre and of coloured bands of feather-work studded with small plates of gold. This specimen was termed in the inventory of 1596 'a Moorish hat.'" Guided by this note, Herr von Hochstetter with the assistance of Dr. Ilg, the custodian of the Ambras collection, found the precious relic and rescued it from an obscure corner of a show-case where it hung, folded together, next to a mediæval bishop's mitre and surrounded by sundry curiosities from North America, China and the Sunda Islands. It was, unfortunately, in so impaired and moth-eaten a condition that, to use Herr Hochstetter's words, he feared it would fall to pieces on taking it from the case. Permission was obtained for its immediate transfer to the ethnographical collection then in process of formation, and the valuable object was placed under the care of Herr von Hochstetter who proceeded to provide for its future preservation and to investigate its past history with the following interesting results.¹

Its earliest record, dating as far back as 1596, was found in the first inventory of the Ambras collection written one year after the

¹ These were published in Herr von Hochstetter's treatise "*Ueber Mexikanische Reliquien aus der Zeit Montezuma's*," Wien, 1884, from which I have derived this and further valuable data.

demise of the archduke Ferdinand of Tyrol, the founder of the collection, by the imperial commissioners appointed to revise his will.¹ On folio 472 of this ancient document it is catalogued with other objects in feather-work contained "in a chest (No. 9)" and is described as "a Moorish hat of beautiful, long, lustrous green and gold-hued feathers, bedecked above with white, red and blue feathers and gold rosettes and ornaments. In front, on the forehead, it has a beak of pure gold." The term Moorish, as here applied, can scarcely be regarded as a deceptive one inasmuch as "Montezuma, the king of Temistitan and Mexico," is subsequently designated as "a Moorish king" in this same inventory of 1596. (See p. 9.)

It is interesting to note the gradual changes that occur in the wording of the subsequent periodical official registrations of this "Moorish hat." In 1613 its description was faithfully reproduced. In 1621 the word "Indian" was substituted for "Moorish," with this single alteration the original text was again transcribed in 1730. In 1788, however, a remarkable transformation was effected, the hat became "an apron" and the official record reads: "An Indian apron of long green feathers. It is garnished above with a narrow band of white feathers, followed by a broad one of green, then there is a narrow stripe of red and a broad one of blue. The bands are studded with crescents or horse shoes, small circular plates and other thin gold pieces. The old inventory designates this object as an Indian hat."

This last sentence proves the identity of the specimen described. The "beak of pure gold on the forehead" is not mentioned here and no subsequent reference is made to it. It probably found its way to the melting pot during the fifty-two years intervening between the two registrations, sharing thus the common fate of almost all of the much admired goldsmiths' work brought to Europe by the Conquerors. Despoiled of the gold beak and possibly of such means of attachment as may have originally served to fasten it, it would seem as though the object had been deprived of that which characterized it as a head-dress for it remained "an apron"

¹ Ferdinand II of Tyrol (1529-1595), whose name is indissolubly linked with that of his patrician wife Philippine Welser, was the second son of the Emperor Ferdinand I of Germany and the nephew of the Emperor Charles V. At the death of Ferdinand I, the Empire was divided between his three sons and the government of Tyrol fell to the Archduke Ferdinand whose court became a noted centre of art and learning. His favorite residence was the castle of Ambras near Innsbruck, destined to be gradually transformed into a museum for the world-renowned and magnificent collection brought together through the manifold and systematic exertions of its enthusiastic founder.

in the official records from 1788 to 1855. In that year Baron von Sacken, as before stated, re-described it, however, as a head-dress and, for the first time, termed it *Mexican*; a specification due, it would seem, exclusively to the fact that the long green feathers were pronounced by a scientific authority (Dr. Fitzinger) to belong to the *Trogon pavoninus*, the Quetzal of Southern Mexico and Guatemala.

Restored to light by Herr von Hochstetter after twenty-three years of oblivion, the use of the elaborate and precious piece of feather-work became the subject of thought and conjecture resulting in recent publications of widely divergent individual opinions.

Mr. T. Maler, a resident in Mexico, travelling in Europe, saw the object in Herr von Hochstetter's custody shortly after its restoration, and obtained his permission to sketch it. Herr von Hochstetter mentions on page 6 of his treatise his subsequent surprise at seeing Herr Maler's sketch appear in a French periodical ("La Nature," No. 300, 1^{re} Mars, 1879) accompanying an article by the same gentleman entitled "Un vêtement royal de l'Ancien Mexique" and "containing a number of misstatements and inaccuracies." These are reproduced in a brief notice by Mr. Maler also entitled "Un ropaje de plumas" inserted, with a colored reproduction of his sketch in the *Anales del Museo nacional*, tomo III, Mexico, 1886. One of his mistakes, however, can be traced back to the writer of the printed catalogue of the Ambras collection, published in 1819, and we will assume that Mr. Maler's odd and misleading Spanish translation of part of the (misapplied) German text taken from the above source is due to an oversight in proof-reading.¹

Other errors are more serious, such as the inaccurate proportions of his sketch and his hasty identification of the species of birds whose feathers were used, as he supposed, in the manufacture of the object. In the text of the above article, Mr. Maler gives the accurate length of the central portion of the feather piece, 1 metre .05 centimetres, but on his colored plate the measurement printed is 1 *metre* 50 *centimetres*. I draw special attention to this error (evidently another misprint), because I notice that in the re-

¹The original quotation is "Ein moerischer Feder Puschen so aim Ross auf die Stirn gehört" . . . meaning "a Moorish feather-tuft like those used as plumes on horses' heads." Herr Maler's translation reads: a Moorish feather-tuft for the forehead of a cavalier: "Penacho de plumas morisco para la frente de un caballero."

cent publication "México á través de los Siglos" the incorrect measurement is reproduced with Mr. Maler's sketch on page 805. It is probable that the exaggerated dimensions thus assigned to the object led the writer of the above work, Señor Alfredo Chavero, to term it "a rich feather mantle with gold ornaments" differing thereby from Mr. Maler who assumed that the "garment was intended to be worn about the waist as an apron."

Finally, another and novel interpretation of this most interesting relic has been given by Herr von Hochstetter. At the conclusion of a careful and elaborate treatise on this subject he expresses his belief that this "ancient Mexican piece of feather-work is a fan-shaped standard or banner that once belonged to a military dignitary of highest rank at the court of Montezuma, possibly, to the unfortunate Emperor himself."

On reviewing the history of this remarkable piece contained in a series of records extending over a period of nearly 300 years, we find that in its original perfect condition it was explicitly recognized as a head-dress and was minutely described as such, and this primary appellation surely constitutes of itself a testimony deserving to be most carefully weighed and tested. For it was written down at a period separated from that of the Conquest by an interval of only seventy-five years—thus at a date when most of the rare specimens of Mexican industry, first conveyed to the old World, still existed and indeed were so highly prized that they were deemed fit to be exchanged as presents between Pope, Emperor and King.

The quotation of a few passages from Dr. Hirn's biography¹ of the imperial founder of the Ambras collection will illustrate the genuine and learned interest the Archduke Ferdinand took in his costly possessions and his earnest efforts to obtain accurate registrations of historical reminiscences and all details connected with each fresh acquisition. "No branch of learning was more enthusiastically cultivated at the court of Ferdinand than that of history. His lively interest in historical reminiscences are proven by the world-renowned collection of Ambras and his intercourse with learned men, a number of whom were employed by him in their special line of study and research." (Page 353.)

"It was his intention that the Ambras arsenal should contain

¹ Erzherzog Ferdinand II von Tirol. Geschichte seiner Regierung und seiner Länder. Dr. Joseph Hirn, Innsbruck, 1884-1887.

the armour of celebrated men, not merely on account of their beauty or artistic value, but by reason of the historical memories linked to them. The most simple and inornate article was therefore welcomed if associated with any important event." (Page 435.) "The Archduke aimed still further and he endeavoured through his numerous agents to obtain authentic portraits, biographies and genealogies of the persons to whom these objects had belonged." . . . The learned Jacob Schenk, his most indefatigable collector, was ordered to prepare "a book of armour" in which copper plate portraits of all the personages whose armour had a place in the collection were to be published with biographical sketches. This magnificent work, a marvel of artistic skill, was not completed when the Archduke died, but it appeared in 1601. (Page 351, *op. cit.*)

The Inventory of 1596 affords the corroborative proof of a previously existing method of labelling the articles in the Archducal Museum by the reference (after its brief entry) to "a slip of paper attached to it," for further details concerning the history of an Indian axe "that had belonged to a Moorish king." The reference to this "slip of paper" is repeated in 1621, and we are informed of the details it contained in the Inventory of 1788 (vol. I, fol. 215). "This weapon belonged to Montezuma II, king of Temistitan and Mexico. It was sent by the Spanish Captain Ferdinand Cortés to the Pope whence it came as a present to Archduke Ferdinand." Dr. Hirn, however, mentions it (*op. cit.*, p. 439) among the miscellaneous gifts bestowed upon the Imperial collector by Count Hannibal von Hohenems.

It is obvious from this evidence that no pains would have been spared at least to obtain the designation which had accompanied the feather-piece from Mexico, and there is every reason to conclude that the most elaborate and precious piece of feather-work possessed by the Imperial connoisseur was named and registered as a *hat* = head-dress in the Inventory of 1596 by authentic and trustworthy authority.¹

Moreover, an investigation of the forms of feather head-dresses described in the early Spanish and native chronicles and preserved in contemporaneous records, and above all the evidence furnished by the relic itself, fully convince me that the original specification is the only tenable one and that the feather-piece is undoubtedly a head-dress. The results of these researches are now presented

¹I shall refer to other objects in Mexican feather-work that at one time formed part of the Ambras Collection.

and will be found to demonstrate so clearly that the object is neither a mantle nor an apron, that it is quite superfluous to adduce further proofs in contradiction of these fallacious suppositions. But it will be necessary to scrutinize more closely the grounds upon which Herr von Hochstetter based his opinion that it was used as a standard.

The chief support of this theory is the undoubted and striking resemblance to the feather-piece which is presented by an object depicted behind the form of an Aztec warrior in a small oil painting belonging to the Bilimek collection of Mexican antiquities acquired by the Vienna Imperial Natural History Museum in 1878. This and a companion painting of the same size and by the same hand are executed in oil colors on canvas. They were both so much torn that, in order to preserve them entire, they had been gummed to an old piece of printed paper dated Mexico, 1783. It would seem as though the figure of the Aztec warrior had been copied from a native manuscript dating from shortly after the Conquest, for its contour and details retain certain conventionalities characteristic of ancient Mexican pictography.¹

Herr von Hochstetter considered that the object depicted behind the figure of the warrior was an ensign or standard, here represented as though it were fastened to the back of the combatant and as actually being carried by him. It is a well-known fact that this was the habitual way in which Aztec war-chiefs bore their respective ensigns into battle, and the practical method of fastening them is disclosed by reference to the group of fully equipped military leaders, viewed from behind, copied from Padre Duran's atlas. (Pl. II, fig. 1.) In a number of illustrations giving the front view of such standard bearers it is evident that the straps which were passed over the shoulders and about the waist crossed each other over the chest.²

¹This painting underwent complete restoration under Herr von Hochstetter's direction, was varnished and attached to a stiff background. The second painting retains its tattered condition and bears an heraldic shield enclosing the coat of arms of a city in Mexico. As there are abundant sources of information on the armorial bearings bestowed by the Spaniards on their establishment of cities and towns, it will be comparatively easy to identify those on the painting and this identification will be of interest on account of the side light it may throw upon the origin of the painting of the Mexican warrior.

²"Each company had its standard bearer who carried the banner mounted on its staff and tied in such a way to his shoulders that it did not hinder him from fighting or from doing anything he had a mind to; and it was so well bound to his body that it would have been impossible for any one to unfasten it or take it from him without cutting him to pieces." Conquistador Anónimo III en Icazbalceta, Documentos, tomo I, Mexico, 1858. See also Torquemada, *Monarquía Indiana*, tomo I, p. 525, Madrid, 1723.

The Nahuatl name for standard or banner in general was quachpantli or (with a common inversion of the final syllable) quachpanitl and quachpamitl, a word literally meaning "that which is carried above (or on) the shoulders"—the sole, customary way, it should be noted, of carrying banners in Aztec warfare.¹

Although Clavigero, Bernal Diaz and others in their exaggerated accounts of the battle of Otumba, speak of the standard carried by Cihuatzin, the leader of the Mexicans, as though it had been a central ensign the seizure of which decided the battle in favor of the Spaniards, it seems evident that it was the death of their supreme war-chief, and not the loss of a national emblem, that so disconcerted the Mexican warriors and caused their flight and defeat. We are told that, "according to the usage of these people, the standard Cihuatzin bore was strongly fastened to his body, that it consisted of a lance or staff nearly 10 hand-breadths (palmos) high, to the top of which a golden net was fastened, and that this particular kind of standard was named tlauizmatlaxopili" (Clavigero, ed. Mora, Mexico, 1844, p. 75). An analysis of this word compared with the detailed description of the object itself proves that it is a synthesis of tlauiztli = insignia, ensign, matlatl = net and topilli = staff, pole, and therefore that the correct spelling of the name should be tlauizmatlatopilli = the ensign of the net and staff.²

A device answering somewhat to this description is represented in the collection of Mendoza as actually carried by a war-chief of exalted military rank "who had acquired the right to wear it on account of his bravery and the distinction of having made five or six enemies prisoners." (Pl. II, fig. 2.)

An equivalent insignia, whose form recalls that of a fishing-net, depicted on p. 80 of Vatican Codex (Kingsborough, vol. III), is

¹ M. Rémi Siméon, in his *Dictionnaire de la langue Nahuatl*, and Mr. Ad. Bandelier in "On the Art of War among the ancient Mexicans (in note 82), give the derivation of quachpantli as from quachtli = mantle or cloak, and pan = upon, above. I would seek further back for its derivation and suggest that the radical, both of quachtli = cloak and quachpantli = ensign, was the word quechtli = shoulders or neck, above which both of these objects were carried. From this word quechtli with the affix pan, above, a whole series of words is formed: quechpan, toquechpan = on the shoulders, on one's shoulders. Again, quechpanoa = to carry somebody or something on or above one's shoulders. (For further examples, see Molina's *Vocabulario* and M. Rémi Siméon's *Dictionnaire*.)

² Mr. Siméon's attention was evidently not arrested by the description of the object, as he reproduces the synthesis without correction and analyzes it literally as composed of tlauiztli, matlatl and xopili = toe = "the insignia of the net and toe."

represented four times in the tribute roll of the Mendoza collection, and the network, surrounded by a light frame of variegated feather-work, is invariably painted light yellow-gold. The frame-work tapers towards the top which is surmounted by a bunch of tall feathers rising from a solid cup-shaped base, exactly similar to that terminating a curious device consisting of a long, winding ribbon invariably painted light, yellow-gold. This is depicted in the Mendoza collection in Cortés, *Historia de Nueva España* (ed. Lorenzana, Mexico, 1770). (Pl. II, fig. 4.) Also in Padre Duran's *Atlas* (trat I, lam^{as} 5, 7, 11, 22 and 30). In the latter work we see how this device was actually carried. (Pl. II, fig. 1, first and fourth warrior.) The apex of the tall staff seems to be inserted into the socket containing the terminal bunch of quetzal feathers and the streamer hangs loosely about the firm central support. On reading in the *Cronica de Tezozomoc* (p. 595) of a device with the fanciful name of *Tzococolli*¹ = "running river, river of gold, gilded river," one cannot but think it possible that this floating ribbon, probably covered with, or made of gold leaf, like the military device called *malpanitl* (see *opus cit.*, p. 301), might easily have deserved this figurative appellation.

The ensign borne by the second war-chief of the same group (Pl. II, fig. 1) and consisting simply of a large bunch of feathers, mounted on a staff, is very frequently represented either as used singly or in numbers of two, three and four.

The third chief, clad in the skin of an "ocelotl" (American tiger), a costume indicative of high military rank, carries the flag-shaped device (Pl. II, fig. 3), which evidently was the representative form of *quachpantli* = ensign, banner, as it was constantly used in Nahuatl ikonomatic writing for the phonetic value *pantli* or *pan*. In tribute rolls, etc., a plain flag of this form, united by a drawn line to conventional representations of objects, expressed the numeral 20 = *cempoualpantli* (see, for example, Pl. II, fig. 4).² I shall revert later, in the appendix to this paper, to its frequent use as "pan."

¹ Compare with *cocoyotl* = narrow stream of water, spring and *cocotzoa* = to run swiftly (see Molina's *Vocabulario*).

² To understand how a flag = *pantli* came to express the numeral 20, it is necessary to become acquainted with some of the Nahuatl systems of numeration given in Padre Molina's *Vocabulario*. There was one simple and more generally used method of enumeration in which 1, for instance, was *ce* and 20 = *cempoualli*. Various affixes were added to these, the radical numerals, according to the classes of objects that were being counted.

In enumerating chickens, eggs, beans, fruits, etc., etc., and all things that were round

These three most widely represented forms of ensigns by no means exhaust the list of those whose names and pictures have been handed down; ¹ but they will amply suffice to establish certain facts of radical importance in connection with the subject now under investigation. They prove that ensigns were constructed with some consideration for the accidental wear and tear to which they would be naturally exposed by the peculiar method of carrying them and with due regard to the convenience as well as the personal safety of their bearers.

These last considerations rendered it absolutely imperative that the ensigns should be of such a shape as in no way to impede the rapid motions and swift progress of their bearers and therefore we see that whereas height was fully indulged in, breadth of surface was avoided. The broadest example that I have observed represented as worn (Pl. II, fig. 5) seems to partake of the advantage of the flag shape and to be fastened sidewise in loose, weathercock fashion to its staff, thus offering but a thin line of resistance to the air when its bearer was in motion.²

With this knowledge of the sole manner in which ensigns were carried in Aztec warfare and of the facts above recorded, it is rendered evident that a wide-spreading object like that depicted in the

or rolled. 1 was centetl and 20 = cempoualtetl. This affix tetl means stone or something hard like stone: totoltetl = egg is a synthesis of tototl = bird and tetl = stone-like. For the counting of discourses, sermons, paper, dishes, pairs of shoes or sandals, etc., and things that were folded or a collection of diverse objects, the affix was tlamantli: 1 = centlamantli, etc. For ears of corn, maize, plantains, certain cakes, etc., 1 = cemolotl, 20 = tlamic. For persons or houses standing in rows and all things placed in order and line the affix was pantli = 1 cempantli and 20 = cempoualpantli. There were also two different methods of counting objects collectively by twenties (see *op. cit.*, fol. 119). The very word for twenty = cempoualli, meant "one counting" and signified "one set of 20 objects." It will be easily perceived therefore how a single flag conveyed the sound = pantli and also stood for one counting = cempoualli and thus expressed the specific numeral cempoualpantli.

¹ See collection of Mendoza, pts. II and III. Attention is drawn to the fact that, in the text of the above and in the early chronicles, the Spanish word *divisa* = device was applied equally to ensigns or banners and feather head-dresses and evidently meant insignia or marks of distinction in general.

² It is undoubtedly a flag-shaped banner that is interestingly described as follows in the important Memoria of the first presents sent by Cortés to Charles V in 1519, to which document reference will be made later:—

"A fan of feather work, fastened in weathercock fashion, to a staff covered with painted leather and surmounted with a cup (*cópa*) of featherwork. At the summit it has many long green feathers." Considering that the presents recorded in the "Memoria" were those originally sent by Montezuma, through his messengers, to the advancing Spaniards, and that, at the time the document was prepared, Mexico was still unconquered and Aztecs in war-equipment had not yet been seen, it is explicable how the above banner, whose use was still unknown to the writers of the "Memoria," was termed, by them, a fan.

oil painting so frequently referred to and considered by Herr von Hochstetter to be a standard, was constructively unfitted for that service. It would have required the support of more than the single staff mentioned by him (*opus cit.*, p. 14) and would have impeded the freedom of action and celerity of its bearer.

Moreover, on referring to the unique example of a wide spreading ensign described in the text to the Mendoza collection as "a device of small precious feathers" (Pl. II, fig. 6) we find it provided with the firm support of a neatly constructed framework, so like those represented on the backs of the warriors in fig. 1, that one naturally infers that it was attached in precisely the same position and manner. In this case the fan-shaped ensign would scarcely have exceeded the height of the top of the head of its wearer.

These indisputable facts lead to the legitimate conclusion that if the historical feather-piece in the Imperial Museum were really such an ensign it would have been borne on the shoulders in the usual way and therefore one would expect at least to discover traces that its construction had been of a suitable character. A careful examination of the feather-piece proves that such evidences do not exist. Nor can Herr von Hochstetter's inference that the object painted above the Aztec warrior in the small oil-picture is a standard, be accepted merely on account of its position, for it shares this with an arrow placed crosswise, a piece of rope and a house, as a glance at the copy of the picture will show (Pl. II, fig. 7).

Any one at all familiar with Mexican ikonomatography will at once realize the fact that we have to deal here, not with the details of a warrior's equipment but with a rebus, a group of images united solely for the sounds of their names.¹ The position of this inscription above the warrior is in accordance with recognized custom and the thread or drawn line uniting the arrow to the house beneath it proves that the parts of this group of sounds relate to each other and to the same subject.

Let us endeavor to decipher the component parts of this inscription by the light of the trustworthy interpretations given to

¹ "Il est presque superflu de rappeler ici l'observation générale que dans toutes les peintures mexicaines les objets réunis à une tête avec un fil indiquent à ceux qui savent la langue des naturels les noms des personnes que l'artiste a voulu designer. Les naturels prononcent ce nom dès qu'ils voient l'hiéroglyphe" (Alexandre de Humboldt, p. 54, Vues des Cordillères. Paris, 1810).

parallel images by the native or early Spanish translators and annotators of some ancient Mexican manuscripts.

The parallel of the fan-shaped object exists in the noted "Mexican Hieroglyphic Manuscript from the collection of Boturini," reproduced in Lord Kingsborough's *Mexican Antiquities*, vol. I.¹ It forms in two instances part of the hieroglyph recording the name of one of the four leaders of the historical Aztec migration. The names of these four personages are recorded without variation in the oldest as well as in the latest principal works of ancient Mexican history and are as follows: Tezcacoatl, Cuauhcoatl, Chimalma and Apanecatl. The phonetic value of the images forming the hieroglyphs of the first three names are so well known that they can be immediately deciphered. The remaining name Apanecatl is expressed by the familiar fan-shaped object placed above the conventional sign for water (Pl. I, fig. 8).²

Before analyzing the phonetic elements contained in this "rebus" let us direct our attention to the word Apanecatl. It is restricted as a proper name to the above mentioned personage in Mexican history and I have not been able to find it recorded as a common noun in any Nahuatl dictionary. But the following passages in Fray Bernardino de Sahagun's invaluable *Historia* afford a clew to its meaning and etymology. "Those who called themselves Amanteecas were those who made feather-work. They were most skilful and neat in what they did and were in fact the inventors of the art of working in feathers. They made in this way shields and other insignia (insignias) which they called *apanecayotl*," chap. xxix, lib. x. "The Toltecs went to meet him . . . taking certain armour (*armas*) or ornamental devices (*divisas*) called *quetzal*"³

¹ Before the original MSS. left Mexico it was copied by the Mexican historian Don Carlos de Sigüenza de Gongora. This copy was subsequently lithographed in Ignacio Cumplido's Spanish edition of Prescott's *Conquista de Mexico*, 1846, vol. III. According to a tradition recorded in the accompanying text, the MSS. dates from before the Conquest and was presented to Cortés by Montezuma. At all events the authenticity and antiquity of this document are unquestionable.

² See, for instance, Torquemada, *Monarquía Indiana*, Madrid, 1723, vol. I, p. 78 and Orozco y Berra, *Historia Antigua de Mexico*, 1880, vol. 3, p. 70.

The late Mexican savant and historian Señor Orozco y Berra (*op. and l. c.*) erroneously took this image to be that of a "bridge of reeds," an inadmissible supposition as numerous instances established the single conventional mode of representing bridges by a plank of wood on which footsteps were painted placed across a line of water as for instance, in "Collection Mendoza," part II, p. 68.

³ This word specifies that, in this instance, the devices were ornamented with the tail-feathers (*quetzalli*) of the quetzal.

apanecayotl and shields called xiuhchimalli.¹ They dressed, or accoutred him (vistieronlo) with these in token of triumph and honour." Chap. vi, lib. iii.

With this evidence to guide us there is no difficulty in determining the etymology of apanecayotl which we ascertain to be the abstract or general term for such insignia as clothed or encircled in some way their wearer, being derived from the verb "apana = to adorn, clothe or encircle one's self with a blanket or something similar" (Molina Vocabulario).²

As a study of the tribute rolls reveals but two kinds of military insignia = the standards = quachpantli "that were carried on the shoulders" and the various kinds of head-dresses, we must conclude that the feather head-gears which were bound about the head, were commonly designated as apanecayotl while each special variety had, as was the case with the standard, its own descriptive and often fanciful appellation. As the high authority of the Boturini MSS. establishes the fact that such a fan-shaped object, accompanied by a complementary sign, to which we shall again refer in the appendix, expressed the sound apanecatli, it can safely be concluded that its colored representation in the Vienna oil painting with quetzal feathers, which are quite unmistakable, yields the phonetic value quetzalapanecatli. This word we will now investigate.

In Monsieur Rémi Siméon's dictionary we find "Quetzalapan = a locality north of the city of Mexico conquered by Montezuma II," and in Clavigero (ed. Mora, p. 140), the record that in 1512, an army of Mexicans marched northwards against the Quetzalapanecas³ and returned victoriously with the (doubtful) number of 1,330 prisoners. Therefore assuming that this word, in connection with

¹ This word is composed of Chimalli = shield and xiutli = turquoise. An example of an ancient Mexican shield, inlaid with turquoise, coral or pink shell, and mother-of-pearl is preserved at the British Museum in the Christy collection.

² Words ending in yotl or otl are nouns, meaning in the abstract, the qualities of such and such a thing: for instance, Teotl = God, Teoyotl = divine; Ilhuicatl = Heaven, Ilhuicayotl = heavenly. Abstract nouns in otl also signify the usages, customs and rites of nationalities, provinces etc., etc. Thus Michhuacayotl means something from Michhuacan (a province in Mexico), its customs, produce, condition. (Padre Carochi Arte de la Lengua Mexicana, Mexico, 1645, fol. 53.)

See also, *op. cit.*, the following words: Nantli = mother, Nanyotl = motherhood; Yam-anqui = something soft, Yamancayotl = softness; Nemi = to live, Nencayotl = food, support, that by which we live.

³ The singular of this word is Quetzalapanecatli and it is formed according to the rules set forth by Padre Carochi, Arte, p. 57. "When names of localities end in pan, the names for their inhabitants are formed by adding 'ecatli:' for instance, Tlacopan = Tlacopanecatli, an inhabitant of Tlacopan."

the Mexican warrior of the oil painting, may either designate his nationality or merely record his prerogative to make use of the feather-work insignia = Quetzalapanecatli, we proceed with the decipherment. The next object, an arrow, represents the sound of its name = tlacochtli. When placed above a head that wears the copilli or diadem (Pl. II, fig. 9), it expresses the ancient title Tlacohtecuiltli = lord of the arrows; painted above a house = calli, it conveyed the appellation Tlacohtecalcatli, lord of the house of arrows, which was borne by one of the four principal chiefs of Mexico. This title seems to have been identical with the first and was borne, as we shall see, by Montezuma and his predecessors when filling the post of supreme war chiefs.

In the rebus the arrow is united by a line to the house beneath, and I would read tlacohtecalcatli, translating the title which is confirmed by the full military equipment of the Mexican warrior, as = "captain general" or supreme war-chief.¹

Finally, the image of a house = calli, and that of a cord = mecatli, yield the combined sounds calmecca to which I feel authorized to add the suffix hua, meaning "possessor or lord of," as numerous instances precede in which the idea of possession is meant to be understood merely from the proximity of objects to the image of an individual.² Whatever the origin of the word Calmecahua may yet prove to be, it is recorded as an historical name more than once in Mexican chronicles. It was borne by the "captain of the troops of Maxixcatzin" (one of the four chiefs of the Republic of Tlaxcala) "who fought like a lion" on the side of the Spaniards in the battle of Otumba. This valiant chief took in baptism the name of Don Antonio and is reputed to have been further distinguished by

¹ See hieroglyph of Tlacohtecalcatli Mendoza Collection, part I, pl. XVIII. For records of title see Tezozomoc (*op. cit.*), cap. XII, p. 24, cap. XXXVI, p. 57; Duran (*op. cit.*) cap. XI, p. 102, etc., and Orozco y Berra (*op. cit.*), vol. I, p. 252; Ad. F. Bandelier, *op. cit.*, p. 121. Siméon's Dictionnaire translates the title thus: "captain general — this title was given captains who had taken four prisoners in war." See also his translations of Sahagun's Historia, pp. 228, 522, 806, 541.

² A striking instance of this is preserved in a valuable ancient MSS. (also from the Bilimek Collection), belonging to the Ethnographical Museum of Vienna. A banner above a house, adjoining a seated figure (Pl. II, fig. 11) expresses, according to the contemporary annotation the name of "the locality" = Panhuacan = place of the possessor of a banner, can (suffix) meaning "place of the" preceding noun. Hua = possessor or lord of that which precedes, pan = pantli = banner. In this case the house denoting = place of, and the figure denoting = possession, are ideographic and the banner = pan alone expresses the sound of its name. This example reveals some of the difficulties that bar the progress of the decipherment of the Nahuatl graphic system.

attaining the age of one hundred and thirty years.¹ Ixtlilxochitl cites Don Antonio Calmecahua as one of the authors of the history of Tlaxcala written in 1548, and mentions, on the same page, another individual Tezopatzin Calmecahua with the same surname.

When read from below upwards, the order observed in the majority of similar instances, the deciphered inscription sounds: Calmecahua Tlacochealcatl Quetzalapanecatl.² Thus, we obtain (1) the name of a famous historical personage, accompanied by (2) a title recorded to have been borne by him, and (3) either a tribal designation that would prove him to have been an enemy of the Mexicans, the conquerors of his people, and natural ally of the Spaniards (which would explain his policy at the battle of Otumba), or the record of his possession of the prerogative, which we shall see to have been confined to the Tlacochealcatl, of using such a feather-work insignia. Indeed this is found to be appropriately and consistently decorated with a design of small arrows = tlacochtli.

Complementary evidence seems to corroborate the correctness of this decipherment. The weapon³ in the warrior's right hand is covered with tiger skin and the use of this in military accoutrements was strictly limited to the lords or war-chiefs who had earned the high military title of ocelotl (tiger).⁴ The ornament on his head, evidently the quetzaltlalpiloni, betokens of itself exalted rank and was restricted exclusively to the lords and valiant men.⁵

There are two additional points connected with the image of the Mexican warrior that deserve attention.

Herr von Hochstetter, in describing him, says (*op. cit.*, p. 15): "At his feet lie the amputated heads of the enemies he slew; his right foot rests on one of them." In connection with this statement I need only refer to the constant occurrence in Mexican pictography of heads without bodies, this being the recognized and well

¹ Clavigero (*op. cit.*, p. 76). See also Torquemada (*op. cit.*, tomo I, p. 436) and Réim Siméon's Dictionnaire. Ixtlilxochitl Historia Chichimeca in Kingsborough's, vol. XI, p. 293.

² The sequence of name and title is the customary one, exemplified by the following names followed by military titles given in Torquemada (*op. cit.*, vol. I, p. 565). Axoquentzin Quachic, Temilotzin Tlacteocatl, Itzpapalotzin Otomitl.

³ It closely resembles in shape an example in the Mendoza collection, part II, plate 68, termed by the annotator lanzones (lances).

⁴ Clavigero (*op. cit.*, p. 215), "The tigers (belonging to the third military grade) were distinguished by armour made of tiger skin." See cited example in Padre Duran's Atlas.

Sahagun (*op. cit.*, lib. VII, cap. XII). "The lords carried also other armour and devices called ocelototec, made of tiger skin strewn with rays of gold."

⁵ See Text to Vatican Codex, pl. LXXXVI, Kingsborough, vol. VI.

known cursory method of representing individuals. I cite in proof the following instances:

On the obverse of folio 2 of the valuable Mexican MSS., No. 29040, dating from about 1530, as described in Mr. Bernard Quaritch's Catalogue, No. 363, 1885, "a seated figure of Tenancacaltzin" is depicted . . . "with his emblem at foot, which is formed by a group of amputated heads of princes. On the reverse are the figures of a king and his son . . . This leaf is intended to exhibit the ancestry of Ixtlilxochitl." I am under obligation to Mr. Quaritch for allowing me to copy the Nahuatl text (in Spanish letters) of this unique document. The inscription under the first figure and its emblem is "Tenancacaltzin inhue ypiltzontecomatl" = Tenancacaltzin, proper name, inhue (inique?) = these, y = his, pil = sons, tzontecomatl = heads. The writer of the above description in the catalogue translated pil = pilli by "princes." Although the name is often used to designate those of noble birth, the usual meaning of it is simply son, child: thus pillhua = is (see dictionaries) "he who has (possesses) many children = the head of a large family." According to the translator, this folio "evidently deals with genealogy." I have seen a somewhat similar disposition of heads in another authentic document (in private hands), accompanied by the Nahuatl word = tlacaxinachotl = lineage, descent. In the presence of these examples, and the absence of precedent for the interpretation of "decapitated enemies," it will be as well to consider whether such heads may not be explained as merely representing the number of legitimate descendants belonging to the accompanying portraiture of an individual who would be thereby designated as a pillhua: head or founder of a large family.

The second feature of this painting is the fact that the personage is depicted as dressed in a human skin. This is worthy of special note, inasmuch as it not only corroborates the deciphered title, but throws light on a subject of wider interest.

A remarkable example of a parallel representation of an historical character is recorded in Lord Kingsborough's Mexican Antiquities,¹ where it is stated that in an unpublished portion of the Codex Vaticanus "Montezuma as a priest and generalissimo of the Mexican armies during the lifetime of his predecessor Ahuizotl

¹ Vol. VI, Explanation of the Codex Telleriano Remensis (footnote, p. 142) and of the Cod. Vaticanus (p. 179).

is painted clad in a human skin." This statement is confirmed by Torquemada¹ who relates that it was said that "Montezuma had worn a human skin at a certain festival and performed a religious dance in it, to witness which rare spectacle all the inhabitants of the capital city and neighboring people came together." Torquemada further states that "this singular usage was probably not invented by Montezuma, but had been practised by his ancestors or by neighbouring kings."

The collation of the following testimony, taken from various sources, gives a clew to the import of the singular garb worn as insignia of rank and affords a curious insight into the mysterious past of a people whose records have reached us only in distorted form either through the hands of antagonistic strangers or of alienated descendants.

"They say that Totec (a deified hero the companion of Quetzalcoatl) was accustomed to go about clothed in a human skin . . . In the festivals which they celebrated to him, men clothed themselves in the skins of those whom they had slain in war and in this manner danced and celebrated the festival" (Kingsborough, vol. VI, p. 179). "At the feast Tlacaxipehualiztli, they paid homage to an idol that bore three names. The first name was Totec . . . also Tota, which means father (to = our, tatli = father). Although I was, at first, unable to ascertain the meaning of the name Totec and was nonplussed, I questioned and cross-examined and finally extorted the explanation that it signified, awful, terrible, fear-inspiring lord" (Padre Duran, *op. cit.*, vol. II, p. 147). "At the solemn festival Tlacaxipehualiztli, the bodies of sacrificed victims were flayed and those who wore the skins were called Tototectin (singular Totec)" (Duran, vol. I, p. 179; see also p. 148 and Sahagun, lib. I, cap. XVII). "Of the two supreme pontiffs, elected on account of their perfections and merits, the first one called Quetzalcoatl was surnamed or entitled Totec"² (Sahagun, appendix to book III, chapter IX). "The priesthood dwelt in the building called Calmecac where they conducted the education of the male youth" (see Sahagun, book III, chap. VIII).

Now it is a well known fact that in ancient Mexico certain in-

¹ Monarquía Indiana, lib. VII, cap. XX.

² I would identify the title given: Totec tlamacazqui (to = our, tecuhtli = lord, tlamacazqui, priest) spelt also Teotec tlamacazqui in Sahagun (*loc. cit.*), with the title Teotecuhtli given in Torquemada (*op. cit.*, vol. II, p. 175). See also Orozco y Berra, *op. cit.*, vol. I, p. 231.

dividuals could become the living representation of their tribal deity, wear its distinctive insignia and garb, and bear its name which became, in their case, a reverential title.¹

Therefore, when we encounter the presentment of an historical personage painted as wearing the reputed garb of the god Totec, it is safe to infer that the individual is thus designated as having borne the exalted title of Totec tlamacazqui, and that he had filled the office of high-priest — one that, by no means, would have excluded him from deserving military dignities as well.² For the priesthood formed no distinct caste in the social organization of ancient Mexico. Its members went to war and the priest, tlamacazqui, who secured three or four prisoners received the military title of Tequia and added this to his priestly one. Sahagun (book II, chap. xxv) explains the plural of the appellation thus acquired: Tlamacaz-tequi caque by "Priests who have performed heroic feats in war." It is indeed interesting to be able by means of Montezuma's picture in the Codex Vaticanus safely to determine that he had earned by his virtues, merits and zeal in serving in the temple the special title of Quetzalcoatl Totec tlamacazqui of Huitzilopochtli. A strange glimpse into his earlier life is afforded by Torquemada's record if we infer, as may well have been the case, that the large festival at which Montezuma performed a solemn religious dance, clad in the symbolic garb of the hero-god Totec, was the ceremony of his investiture and assumption of the exalted title and rank bestowed upon him by election. As "generalissimo," Montezuma's title would naturally have been Tlacochealcatl, or Tlacohtecuiltli; and indeed we find this title recorded

¹ "All noblemen did represent idoles and carried the name of one." Acosta, *Natural and Morall Historie of the East and West Indies*, translated by E. G. London, 1604, lib. 5, p. 349. In connection with the wearing of the distinctive garb of a deity by priests, see Sahagun, *op. cit.*, book II, chap. XXI, Fray Motolinia (Coleccion de documentos, Icazbalceta, Mexico tomo I, trat. I, ch. v); Duran, *op. cit.*, vol. I, p. 283; vol. II, pp. 91, 92, 106). I give further quotations and references relating to this subject in "The Terracotta Heads of Teotihuacan," *Am. Journ. of Archeology*, Baltimore, 1886.

² Compare with the following "Montezuma was elected to the regal dignity in 1502 . . . for his superior qualifications both as a soldier and priest, a combination of offices sometimes found in the Mexican candidates . . . In early youth he had taken an active part in the wars of the empire, though of late he had devoted himself more exclusively to the services of the temple, and he was scrupulous in his attentions to all the burdensome ceremonial of the Aztec worship" (Prescott, *Conquest of Mexico*, London, 1865, vol. I, p. 236). It may be of interest to note here that the correct form of the name is Motecuhzoma. It is given thus by Torquemada and Sahagun, and their valuable authority is confirmed by the hieroglyph expressing the phonetic parts of the name and by its meaning.

as borne by him at the time of his election as successor to Ahuigatl, in the chronicle of Tezozomoc (p. 571). The same writer affords good grounds for believing that Ahuizotl, at the time of his death, filled the post of Totec-tlamacazqui (see p. 568).

We have indicated already the evidences showing that the same two titles were carried by the Mexican priest-warrior of the Bili-mek Collection.

In connection with one of these titles a few words may be added. The Totec-tlamacazqui, or supreme pontiff as the Spanish writers termed him, must naturally have held certain prerogative and exercised some power in the Calmecac, the building where the learned men of ancient Mexico dwelt and imparted their knowledge to the youth and gave them religious and military training. His dignity as the lord or master of the Calmecac could have been expressed by no other word than that of Calmecahua, and thus the deciphered word, preserved as a surname by Don Antonio of Tlaxcalla, proves to be a specific designation.¹ As we have seen in the case of Tezopatzin (see p. 18), it was placed, as such titles usually were, immediately after the name.

Having advanced thus far in our attempted explanation and decipherment of the Bilimek painting, we have gained the certainty that the images, depicted behind the personage represented in it, yield phonetic elements admitting of plausible decipherment, and therefore annul the evidence derived from the mere position of the fan-shaped object, the basis of Herr von Hochstetter's assumption that it was a standard. Let us now examine the further grounds on which he founded his final opinion.

Although Herr von Hochstetter (p. 15, *op. cit.*) expresses his belief in being able to prove that the feather piece was not used as a fan but was carried as a standard, he names it elsewhere (p. 16) a "Fächer Standarte" (fan-standard) and subsequently goes so far as to think it probably identical with a "fan" mentioned among the presents sent by Cortés to Charles V. He tells us that his friend and colleague, Professor Dr. Büdinger, had drawn his attention to the portion of Prescott's History of Mexico (London), 1860, containing the inventory of the first presents sent by the Con-

¹ See the preceding examples, of the use of the suffix *hua* (p. 7 and note 1, p. 9). Invariably associated with the power of possession it meant, according to the noun after which it was placed, lord or master of, possessor of, keeper of, also inhabitant of, as for instance: *altepetl* = village, *altepehua* = villager.

queror to his Emperor, among which figured a fan "of variegated feather-work, with thirty-seven rods plated with gold" and "five fans of variegated feather-work, four of which have ten and the other thirteen rods embossed with gold." After quoting these entries in English text Herr von Hochstetter proceeds: "These fans are described in a few characteristic words so entirely applicable to our feather-piece that indeed it would not be possible to describe it better in brief than as 'a fan plated with gold.'"

It will be noticed by English scholars that this abbreviated quotation causes the words "plated with gold" erroneously to qualify the fan instead of the rods, the meaning really conveyed in the original text. Upon this Herr von Hochstetter reasons that the word "rods" in this case scarcely could have borne its literal meaning and that he would prefer to translate it as "Strahlen" = rays. I must refer the reader for further details on this point to the ensuing sentences of the Professor's memoir. It will suffice to state here that on observing that exactly thirty-seven gold crescents formed the narrow ornamental border of the feather piece and that this number agreed with that of the "rods" of the fan above described, Herr von Hochstetter chose to consider this coincidence was not merely accidental but that it rendered it probable that the fan-shaped standard is the piece of feather-work described among the presents sent by the Conqueror to Charles V, as a "Fächer aus verschiedefarbigen Federschmuckwerk mit 37 Strahlen und mit Goldplättchen besetzt" (*op. cit.*, p. 19). This is no doubt an unintentionally distorted translation of the English text upon which I need not dwell.

In order to remove all possibility of misunderstanding as to the true significance of the word "rods" let us go back to the original Spanish text of the "Memoria de la joyas, etc., remitadas al emperador Carlos V, por Don Fernando Cortés, etc., en 1519," as published in the Coleccion de documentos inéditos para la Historia de España, Navarrete, Madrid, 1842, vol. 1, p. 461; and also appended to the Spanish translation of Clavigero's *Historia Antigua de Mexico*, ed. Mora, Mexico, 1844, p. 309. The above publications of this important document are the most valuable ones we possess as they reproduce in full the copy of the original Memoria as carefully collated, in 1754, by Don Juan Batista Muñoz with the authentic copy preserved in the "Casa de la Contratacion" at Sevilla, in a volume entitled "Manual del Tésorero."

The entries in question occur as follows. The variations found

by Muñoz to exist in the Sevilla copy are given in parenthesis. Un moscador de plumajes de colores con treinta y siete verguitas (verjitas) cubiertas de oro "Cinco (cuatro) moscadores de plumaje de colores y los cuatro de ellos (que los tres del los) tienen a diez (y tienen a tres) cañoncitos cubiertos de oro y el uno tiene trece (y el uno tiene à trece)." The literal translation of this passage is: "a fan of variegated feathers with 37 small sticks covered with gold."¹ "Five fans of variegated plumage four of them have ten small quills covered with gold and one has thirteen (quills)."²

Now let us learn from a comparative study of the native pictures of typical Aztec fans as carried by ambassadors, reproduced on Pl. II, figs. 13*a* and *b*, what opportunities their usual form afforded for the application of gold decoration. It will be seen that the termination of the ornamental handle formed the point of departure for radial feathers, or for ornamental sticks or reeds, laid on a surface of featherwork, for the purpose of stiffening this. I can only consider that the fans recorded in the second entry before cited must have been made, as many modern fans are and as that represented in fig. 13*b* seems to be, of stout wing feathers, the "quills" of some of which were covered with gold." The fan described in the first entry with its "37 sticks covered with gold" resembled more probably the more elaborately ribbed variety shown in fig. 13*a*; and it undoubtedly agrees with the description given by Sahagun of some fans "which had bands of gold accompanying the feathers" and were used by the lords in their solemn dances.

In ancient Mexico the fan was a mark of rank and dignity. The chiefs alone enjoyed the privilege of carrying them in their hands during ceremonial dances. Envoys to neighboring tribes bore them as an official badge and we find records of precious fans being exchanged as gifts between head-chiefs. Thus Tezozomoc relates (*op. cit.*, p. 411) that Nezahualcoyotl, the "lord of men"

¹A valuable old note, taken also from Navarrete's *coleccion de documetos inéditos*, contains the following explanations of the almost obsolete Spanish terms employed in the "Memoria" to which it is appended (in ed. Mora, *loc. cit.*): *moscadores* = a sort of fan made of feathers, like those used in the present day by ladies.....The ancient Mexicans employed the choicest feathers in manufacturing them and decorated their handles with precious stones. *Verjitas* = "varillas" made of metal or some other material, etc.

According to Spanish dictionaries: *varillas* are the ribs or sticks of a fan.

The modern form of *verjita* seems to be *vergueta* = small twig or stick. See also *verguilla* = gold or silver wire.

² Cañon = quill, cylindrical pipe or tube. (See Spanish dictionaries.)

of Texcoco presented his Mexican compeer, Axayacatl, with "a large fan of precious featherwork with a sun in its centre made of fine gold, around which many valuable emeralds and rubies were mounted, and (on p. 413) that the messengers, sent by Axayacatl to invite a certain chief to partake in the great festival he was about to give, took with them, among other gifts, a broad, large and precious fan decorated with gold, precious stones and transparent amber. "Fans made of the finest feathers with the *moons* in their centre, made of gold" are, moreover, enumerated as part of the tribute paid by the province of Cuetlaxtlan.

These descriptions are best understood by reference to Pl. II, fig. 13*b*, in the middle of which a circular plate, painted yellow, is represented, and the fact that this detail is present in a fan of ordinary size justifies the inference that the presents described above even if of larger dimensions were made after the same conventional model and were intended also to be carried in the hand.¹

I have not been able to discover in the elaborate descriptions of festivals minutely described in native chronicles any record of the use of gala-fans carried on a staff by attendants on state occasions, as was surmised by Herr v. Hochstetter to have been the case with the feather-piece. A single instance of the bearing of fans by menials is given by Bernal Diaz² who states that each of the five messengers sent by Montezuma to reprove the inhabitants of Quiavistlan for affording hospitality to the Spaniards "held a rose in his hand which he occasionally put to his nostrils and that Indian servants followed with fans." Considering, however, that both Torquemada (*op. cit.*, vol. I, p. 400) and Acosta (*op. cit.*, p. 77) state of these same messengers that "they carried in one hand a short, thick staff and in the other large fans made of feathers that were the prerogatives of chieftains alone," and the extreme improbability that an insignia of rank and article of luxury should be relegated to menials; the testimony of Bernal Diaz, although that of an eyewitness, may well be dismissed, especially as his work was only written after a lapse of thirty years from the time of the Conquest. The representations figured on Pl. II, 13 *a, b*, re-

¹ The two Nahuatl names for fans clearly convey the use to which they were put *Ecaceuaztli* is a synthesis of wind = *ecatli*, and *ceualli* = shade. *Ecatzacuilhauztli* is the verbal noun from *ecatzacuilia* = to screen one's self. With an inversion of its first syllable and a transposition of its vowels, the word *ceualli*, shade, is recorded indifferently, as *ceualtotl*, *ecauhoyotl* and *ecauiltotl*.

² Histoire véridique de la Conquête de la nouvelle Espagne trad. Jourdanet, Paris, 1877, p. 109.

veal the size of the fans used by such official messengers, and these examples prove beyond a doubt that the plain, literal meaning of the words in the Spanish "Memoria" can be accepted without hesitation.

The size of the Vienna feather-piece alone renders it quite unsuitable for a fan. On Professor von Hochstetter's own authority there are absolutely no evidences of thirty-seven gilded rods ever having formed part of its decoration, and his final inference and conclusion as to its probable identity with the fan recorded among the Conqueror's gifts must be dismissed as non-supported and therefore inadmissible.

Proceeding now to an examination of the historical feather-piece, we shall allow its structural details to determine finally its true purpose.

As it now hangs, in a handsome frame spread out against a background of black velvet, it presents a gorgeous appearance. The long, loose fringe of quetzal feathers (now hanging downwards) alone exhibits slight evidences of age and decay. Elsewhere, all such appearances have been carefully eliminated; for the restoration made under Herr v. Hochstetter's direction was a complete one and, if viewed as a labor requiring no small amount of skill and patience, is found to deserve the highest praise. Several hundred missing gold ornaments were replaced by exact reproduction in copper gilt. Owing to an unsuccessful effort to obtain a sufficient number of birdskins of the particular Central American species, whence Herr v. Hochstetter believed the feathers forming the turquoise blue band had been originally derived, twenty-four skins of the East Indian kingfisher (*Haleyon fusca* Gray), closely similar in color, were used in restoring its pristine freshness.

Ethnologists will probably never cease to regret that once its future conservation was ensured, the venerable relic was not left untouched; and they cannot but consider its restoration an irreparable error, for it almost entirely deprives those interested in studying the methods of ancient, native handiwork of personal inspection and observation.¹ On the other hand, one cannot but appreciate

¹ Notwithstanding the exceptional facilities for studying the Mexican antiquities preserved at the Ethnographic Museum of Vienna afforded by the courtesy of its Custos, Herr Franz Heger, and his perfect willingness to oblige, a close inspection of the object so elaborately mounted behind glass in a massive frame was not granted me. I am under an obligation to Herr Heger, that I beg herewith to acknowledge, for kindly supplying me with an exact tracing of the outlines of the feather-piece made over the glass and from which my measurements, differing slightly from those given by Herr v. Hochstetter, were taken. The tracing revealed that the proportions of the founda-

a restoration which enables one actually to confront the reality of the barbaric splendor which so impressed the Spaniards.

Fortunately, however, Herr von Hochstetter published a minute description of the feather-piece before its restoration, and it is upon this that we now rely for knowledge of many details at present inaccessible to view being either concealed or obliterated by the restoration.

The fan-shaped base of the feather-piece is composed of harmoniously disposed concentric bands of delicate feather-work studded with thin beaten gold plates of different shapes (see Pl. I, *c, d, f, g*) provided with small symmetrical perforations by means of which they were stitched in place. The crescent-shaped gold ornaments and the smaller tile-shaped ones exhibit, moreover, small projections, evidently meant to be concealed, on which these holes were pierced,—a trifling detail, but one that confirms the accounts given by the early Spaniards of the truly admirable nicety of Mexican industrial art, in all its branches.

Next to the magnificent loose fringe, which was originally composed of about five hundred of the long tail feathers, of which each male quetzal bird possesses but two, the most striking and beautiful feature of the specimen is the broad turquoise blue band. On this a design is uniformly executed with the diminutive tile-shaped gold pieces of which Herr von Hochstetter counted no less than fourteen hundred after having replaced about five hundred missing ones. Overlapping each other, like fish scales, these are so disposed as to form a flexible, rectilinear pattern architectonic in outline and somewhat resembling a series of small towers. According to a verification Herr Custos Heger was kind enough to communicate to me, there are fifteen of these tower-like projections on the concentric band of blue, five more are repeated on the superimposed piece. The fine delicately hued feathers of which this turquoise band was originally composed had been apparently fastened in a most dexterous manner to a background of agave paper but had suffered most from the ravages of insects. Only two and a half of the original crescent-shaped pieces of gold that form the

tion for the feather bands had not been quite accurately reproduced in Herr v. Hochstetter's work. Indeed, a close comparison of the front and back views he published, shows quite a difference between both in the depth of the curved opening at its base. Our artist, in whose hands the model was placed, has endeavored in Pl. I to reproduce its proportions while adhering in detail, with the exception of a few corrections, to which we shall refer later, to Herr von Hochstetter's illustrations.

border close to the inner edge of this band were still in place. The bare spots left here and elsewhere showed, more or less clearly, the former places of attachment of the vanished original gold ornaments and guided their conscientious restoration.

The narrow scarlet band edging the blue needed no restoration and Herr von Hochstetter draws attention to a nicety in the arrangement of the feathers used in it, which are so disposed that their inner side curls outwards forming a projecting ruffled border of effective appearance. Above this is an entirely new fringe made of the small wing feathers of the quetzal. The original band was found to be completely destroyed. The reddish brown one following consists, according to Herr von Hochstetter, of the easily recognized tail feathers of the long-tailed cuckoo (*Diapya cayanae* Linn.) which is met with in Mexico, Central America and South America including Brazil. These were so placed that their white tips formed the outer sharply defined broad line studded with a number of small gold discs. Of the original ones but forty-one remained and these "were left in place" and are distinguishable in our illustration by being shaded, while the one hundred and ninety-three imitations are unshaded. Herr von Hochstetter records only one hundred and eighty-seven of the latter and in his illustration the number of gold discs forming the outer row on the concentric white border and on the middle piece is sixty-eight.

Herr Franz Heger, who was kind enough to indicate the places occupied by the genuine discs, also informed me that he had ascertained the presence of six more imitations than had been enumerated by Herr von Hochstetter. Four of these, terminating the concentric bands, were partly concealed under the middle piece. The two that are visible have been added in our illustration, one at the inner end of each of the two upper right hand rows.

We will now examine the back of the object expecting it to furnish testimony of importance. It resembles somewhat an open, modern fan and is composed of a firm, net-like fabric, woven with much accuracy and neatness, of finely twisted threads (probably of agave fibre) and stiffened by twenty-eight thin sticks covered with fibre and woven into the net at regular intervals. The quills of all the feathers (with the exception of those of the turquoise band) were so delicately and skilfully knotted to this net that the front, with its series of sharply defined symmetrical, concentric bands formed a closely covered, flexible texture of feather-work.

The quills of the long quetzal feathers forming the broad, loose fringe, were also fastened to the net and were firmly caught in its meshes in no less than three places. Corresponding exactly on both sides, the radial width of the network and its concentric bands in front is 28.5cm. The central elevated portion measures 45cm., being adapted to the support of the superimposed middle piece which is 32cm. high from its base of attachment in front and 20-30cm. wide. The semicircular opening at the base, of special importance, is 15cm. deep, and measures 26cm. across.

The total width of the feather-piece is considerably increased by the fringe of quetzal feathers 52cm. wide. This was held together by a series of loops of thread ultimately fastened to the projecting sticks visible above the central elevation. This centre, upon which additional strain was naturally thrown, was thoughtfully supplied with power to resist it. It was strengthened by a stiff lining of hide (presumably deer skin) and was also provided with an external set of dexterously disposed sticks in addition to its radial stiffenings.

Two thin sticks, fastened diagonally across the radial ones, render it evident that for some special reason, as will appear later, a slight stiffening had been required at each side, whereas the central portion of the object was left flexible to be freely curved and adapted to varying size or shape. A loose piece of net, woven of thinner threads, now "completely torn," was stretched over the whole back of the feather-piece. We are not told how this was fastened to the framework, or whether any remaining traces indicated that it had ever covered and concealed the central elevation and its superimposed sticks, a detail that would have furnished important evidence as to whether the object was intended to be viewed on both sides. Herr von Hochstetter found remnants of feathers on this and observed that between the two nets there was a bag-like opening exactly large enough to admit a head. He concludes that it was this "hood-like aperture" that had caused the feather-piece to be originally (and erroneously) named a head-dress. In his opinion, it had served as a receptacle for the upper end of a flagstaff.

Let us pause here to consider the extreme lightness of construction and studied flexibility of the object, evident in the net foundation for the feather-work, in the large, rectilinear pattern, so laboriously executed with diminutive scales and in the thin, radial sticks. Contrast these properties, so appropriate in a feather

head-dress, with the total absence of traces, either of concentric supports or of a solid centre of stability, both imperatively necessary if the feather-piece was to be carried permanently on a staff, or to be spread as a fan-shaped standard. The insufficiency of a piece of delicate network, to hold the upper end of the stout pole requisite, is quite apparent, even supposing the semicircular opening at the base of the feather-piece had been additionally faced with two plates of gold as was surmised by Herr von Hochstetter.

My personal observation and inference, though lacking the certainty of the closest inspection, but corroborated by Herr von Hochstetter's illustration and the total absence of contrary evidence in his work, otherwise so full of minutiae, seem to verify the important fact that the upper more lustrous sides of all the four hundred and fifty-nine remaining quetzal feathers forming the fringe are turned in one direction, towards the front. If intended to be viewed on both sides so thoughtfully devised an object would be expected to exhibit an equal number of the upper sides of the feathers facing each side with traces of special care taken to conceal the supporting sticks among them. Inasmuch as the presence of such an arrangement would have furnished the strongest possible proof in favor of Herr von Hochstetter's supposition, its absence must be regarded as a weighty disproof of it.

Although Herr von Hochstetter states that his attempts at trying on the feather-piece as a head-dress had proved unsuccessful, it must be observed that, according to his own authority, the radial sticks were badly broken at the time, and as the network lacked the stiffness required in order to make the object stand erect the experiment from the outset had no chance of success.

Having made a stiff cardboard model of the size of the feather piece and fitted it to the head in the fashion exhibited by fig. 1 of Pl. II, I was able to ascertain that it assumed at once the exact appearance and contour of the ancient Mexican head-dresses rendered familiar to us by numerous representations. The central portion of the curve fitted closely around the forehead causing the perpendicular front of the head-dress to retain the width of the face only. The broad sides stretched flatly towards the back where their inner sides met. It was interesting to ascertain that, after a few jerky motions made by the wearer of the cardboard model, it became dented at the sides in the precise location held by the diagonal sticks in the original and that precisely such supports, sim-

ilarly placed, obviated this tendency and afforded in addition a most convenient basis of attachment for means of fastening. It was found that a pair of tapes, attached to these diagonal sticks and tied across the back of the head, were sufficient to hold the model in place.

As the reason for each structural detail of the Vienna master-piece becomes apparent, we realize the immense amount of experience that must have preceded its manufacture, and marvel at the foresight and care with which this is executed.

In connection with the above experiment we observe that each of the two military head-dresses from the Mendoza collection (see Pl. III, figs. 11 and 13) is provided with a long pair of long pendants terminated with a series of cross-sticks, evidently intended to be tied to the back (as in Pl. II, fig. 1) for the additional security in warfare for a precious insignia of rank.

Let us now refer to the single front-view in the Mendoza collection of a large diadem made of gold of the thickness of parchment, (see Pl. I, fig. 2). We cannot fail to observe its analogous deeply curved opening, meant to encircle the face, and the central elevation the proportions of which correspond with those of the Vienna feather-piece. Tezozomoc (*op. cit.*, pp. 494, 544 and 569) mentions that such frontlets made of gold paper and called *teocuitla* (gold) *yxecua* (forehead) *amatl* (paper) were used exclusively by the supreme lords. Evidently these frontlets, described as being studded with precious stones, are identical with the well-known "copilli" or crown in the shape of a half mitre and invariably tied at the back with a red knot, so constantly used in Aztec picture-writings as an insignia of supreme rank, or for its ideographic value = *tecuhitli* = lord (see, for instance, Pl. I, fig. 11).

In figs. 1, 5, 6, and 10, Pl. III, we have ordinary representations of military head-gears as given in the native lists of tributes. In each case one-half only is depicted—duplicate it and the shape of the Vienna feather-piece is reproduced and a similar arrangement of concentric colored bands, surmounted by a fringe of long, narrow green feathers, is displayed.

Now let us consider the numerous examples of head-dresses thus obtained, those with central elevations figs. 3 and 8, Pl. III, and lastly the Vienna feather-piece itself, and collate them with the objects painted for their phonetic values behind the Bilimek warrior and above the figure of Apanecatli in the Boturini manuscripts.

In my opinion the inevitable and final conclusions to be derived

from such comparisons is the conviction that the object is in each case a feather head-dress, and that, as the etymology of the word teaches, such were called in general, Quetzalapanecayotl. In the Bilimek painting, I believe that the word Quetzalapanecatl is thus conveyed: in the Boturini manuscripts Apanecatl is undoubtedly expressed by the representation of such a head-dress above a complementary sign, of the significance of which I shall treat in full in a brief appendix on this subject at the end of this essay. Herewith, I abandon further discussion of Herr von Hochstetter's standard theory.

Figures 2, 3, 4, 8 and 12, Pl. III, are faithful representations of the appearance of these feather head-dresses as worn when viewed from the side. The card-board model indicated their fidelity, while the Vienna feather head-dress proves that these representations do not exaggerate, as has been stated by some authors,¹ the size and height actually worn.

The total height of the central portion of the Vienna feather-piece, measured from the edge of the curved opening to the tips of the quetzal feathers, is 1 m. 05 cm., and this would be by no means an unprecedented height for an aboriginal head-dress.² Yet it must be distinctly borne in mind that although the central projecting support caused these feathers to stand erect for a certain distance above the artificial base of attachment, their delicate light and flexible nature would cause them generally to assume the downward curve that they naturally possess, as anyone can certify who has seen the beautiful bird from which they are derived.³ It may well be inferred that the general appearance of the gorgeous head-dress

¹ See, for instance, Ad. F. Bandelier "On the Art of War," Reports of Peabody Museum, vol. II, "The head-dress or *divisa* is represented on nearly every Mexican painting or picture leaf. . . . Its size is generally exaggerated," p. 111 (note 64).

² I am indebted to Herr Prof. Ad. Bastian for kindly informing me that among the highest head-dresses recorded are those of Central Africa where Livingstone speaks of them (among the Bashulupos) as attaining a yard in height. The following quotation from "Wood's Natural History of Man" repeats this statement, "The hair on the top of the head is drawn and plastered together in a circle some six or seven inches in diameter. By dint of careful training, and plenty of grease and other appliances, it is at last formed into a cone some eight or ten inches in height and slightly leaning forward. In some cases the cone is of wonderful height, the head man of a Batoka village wearing one which was trained into a long spike which projected a full yard from his head, and which must have caused him considerable inconvenience. In this case other materials were evidently mixed with the hair, and it is said that the long hair of various animals is often added, so as to mingle with the real growth, and aid in rearing the edifice."

³ The extreme flexibility of these feathers was noted by Padre Sahagun who says: "they are in width like the leaves of the reed mace and bend as soon as touched by moving air" (book XI, chap. II).

when its wearer was in motion resembled that seen in fig. 4, and that the brilliant sweeping fringe fell over his back reaching to his waist as in fig. 3, one of several similar representations from Padre Duran's Atlas.

Reverting to the missing "beak of gold" recorded in the Inventory of 1596 as having occupied a place "on the forehead," I refer to figs. 14-19 for examples of Ancient Mexican head-dresses provided with precisely such an adjunct. That such were actually made of gold is amply proven by the following quotations, and no more convincing confirmation of the thorough consistency and accuracy of the description and appellation preserved in the Inventory of 1596 could be adduced than this of their perfect agreement with recorded fact.

Padre Duran, describing the image or idol or Huitzilopochtli, as depicted in his invaluable Atlas (see Pl. III, figs. 14 and 17), relates that, "the (idol's) feather head-dress was held secure by a counterfeit beak made of brightly burnished gold, vol. II, p. 81. It (the idol) had a rich feather-head-dress fashioned like the beak of a bird which bird was called *huitzitzilin* = humming-bird" (*op. cit.*, vol. II, p. 80). Clavigero (*op. cit.*, p. 154) describes this same idol as having "on his head a beautiful head-dress in the shape of a bird's beak . . . Each one of his ornaments and insignia had its special meaning." Fig. 14 completes these descriptions and exhibits the counterfeit head of a bird made of feather work and surmounted by a large tuft of quetzal feathers, with an open projecting golden beak enclosing the head and face of its wearer.

It must be borne in mind, however, that both of these images were painted subsequently to the Conquest.

The most authentic contemporary representation of a head-dress with beak that we possess, and, therefore, the most valuable one in every way, is that carved as worn by the chief warrior identified as Tizoc in the bas-relief around the so-called Sacrificial Stone in the city of Mexico (see Pl. III, fig. 7). It is so precisely of the shape of our feather-piece with the additions of a prominent beak over the forehead and under the chin, of a circular ear ornament and of a larger circular adornment, that we may well let it determine what kind of gold beak once completed the Vienna relic.

Guided, therefore, by the weighty authority of this carved example, we must conclude that even in 1596 the Vienna head-dress

had already been despoiled of the lower part of the gold beak that necessarily belonged to it and also of the circular gold ear ornaments which, as we shall see from further detailed descriptions of such head-dresses, probably accompanied it.¹ Judging from the dainty workmanship visible in the symmetrical perforations of the gold ornaments remaining, we can understand how the upper beak, probably delicately stitched to the inside edge of the network, could have been subsequently removed without leaving any apparent traces of its former existence, so that it is not at all surprising that Herr von Hochstetter found it impossible to ascertain how the gold beak had been attached.

It is possible for us to form an idea of the actual appearance presented by the head-gear of Huitzilopochtli, as, strangely enough, its resemblance to the polished helmets or casques and the peaked visors worn by the Spaniards gave rise, in a great measure, to the native, superstitious belief—so fatal in its consequences to the Mexicans—that the strange newcomers “must be connected with them in some way as they wore the insignia of the ancient idols.” A few days after their arrival at the port of San Juan de Ulua, Bernal Diaz relates that Teuhtile, a native chief, visited them, and on noticing a helmet, half of which was gilt, worn by one of the Spanish soldiers, requested to be allowed to carry it to Montezuma. For it was of a well known form, one which had been handed down from remote ancestry and was habitually worn by their war idol, Huitzilopochtli. The helmet was given him at once, and it is evident that its gilt portion gave rise to special comment amongst those assembled, for Cortés found occasion to formulate the artful request “that the helmet should be returned to him later, filled with nuggets of gold, so that he could see whether their yellow metal was like that found in the rivers of Spain.”

“As soon as Montezuma saw the helmet and compared it with that worn by Huitzilopochtli, he was convinced that the Spaniards were of the same lineage as himself and had come to rule over their land” (Bernal Diaz, *op. cit.*, p. 88). This conviction led to the dispatch of an envoy with costly offerings to Cortés, among which figured religious insignia and military equipments of all kinds

¹ “The lords used in war a sort of a helmet with many plumes and two hollow circles of gold.” Sahagun, book VIII, chap. XII; see also Torquemada, lib. XIV, cap. v, and figs. 2 and 11, pl. II.

and the Spanish helmet filled with native gold, "which gift," as Torquemada states, "cost Montezuma his head,"¹ as it revealed to the avaricious Spaniards the existence of native gold. It is, however, curious to note that notwithstanding their conviction that the Spaniards wore the insignia of Huitzilopochtli, all historians agree in recording the universal native belief that the strange newcomers must be Quetzalcoatl and his followers. In searching for an explanation of this apparent inconsistency, which has been hitherto overlooked, I have been led to depart from the established views held on this subject. We know that the high priests or living representatives of the ancestral hero Huitzilopochtli bore as a title the name of Quetzalcoatl (Sahagun appendix, book III, chap. IX), and that Cortés from the first announced through his interpreters that he and his soldiers were but envoys and vassals of the greatest lord on earth, the emperor Charles V (Bernal Diaz, p. 86). Judging from recorded facts, the Mexicans seem to have reasoned that, as Cortés acknowledged a superior he could not be a deity, but as he and his followers wore the familiar insignia of their god he and they must be Quetzalcoas or high-priests, the living representatives of their own ancestral hero and totemic divinity Huitzilopochtli from whom the Spaniards likewise must have descended. Such a belief would explain why Montezuma, according to Sahagun, charged his messengers to take to Cortés "all the priestly insignia proper to him (*todos los atavias sacerdotales que à el convienien*") (book 12, chap. IV), and many other facts which cannot be cited without transgressing the limits of the present subject.

By the light of the foregoing testimony the gold beak once attached to the Vienna head-dress is disclosed as the emblem of Huitzilopochtli, and the general shape of the feather-piece establishes its identity as a military head-gear like those painted as worn exclusively by the supreme war-chief in the eight historical battle-scenes of Padre Duran's Atlas. The bas-relief affords consistent representation of a single exalted personage distinguished by a similar tall head-dress from fourteen other fully equipped warriors who wear in common a form of coif ornamented with a bird's head (see fig. 9, Pl. III), of which we find an interesting parallel in the Berlin bas-relief (Kingsborough, vol. II) and in fig. 21 from the Féjervary manuscripts.

It is most important to remember that the supreme chiefs of An-

¹ Mon. Ind., I, p. 390.

cient Mexico were the living representatives of ancestral tribal hero-gods, that they bore the name of one at festivals and wore their insignia in warfare. It is even recorded of Axayacatl, one of Montezuma's predecessors, that he "represented in life our god Huitzilopochtli" (Duran, *op. cit.*, vol. I, p. 304). Guided by this testimony one begins to comprehend the presence of the emblem of that god over a military head-dress, and pauses involuntarily to reflect upon the inspiring effect that the leadership, in battle, of the living image of an ancestral hero must have exerted on the imagination of a deeply superstitious people. We now perceive the reason why there are figured in the lists of tributes paid to Montezuma the high priest and supreme war-chief, head-dresses of the above shape termed, "pieces of armour" (*piezas de armas*), and we find that this shape was that actually worn by the high priest by reference to fig. 8, Pl. III, from Padre Duran's Atlas. The old Indian woman who possessed the original picture told Padre Duran that "it was an image of Quetzalcoatl and that he used to wear the feather crown, shown in the painting, on celebrating the festivals, just as a bishop puts on his mitre when he says mass" (vol. II, p. 77).

The Vienna feather-piece yields moreover remarkable evidence through its most striking feature, the broad blue band edged with scarlet; for this combination of colors is one which is invariably found in the *copilli* or diadem and in the raiment worn by the supreme lord of Mexico. In the Mendoza collection, page 70, Montezuma is depicted as clothed entirely in blue, with the conventional blue diadem tied with a red knot. In Duran's Atlas he and his predecessors are distinguished by blue garments edged with scarlet designs and by blue *copilli* with the usual scarlet knot, and, in some notable examples, a narrow edging of red. Written authority and the Nahuatl special names for the insignia indicative of supreme authority are in accordance with pictorial testimony and prove their distinctive color to have been that of the turquoise¹ =

¹ Exceptional instances occur in which the insignia of authority are painted and recorded as green (Tezozomoc, p. 629). See our fig. 10 of Pl. I. But it is a curious fact, and one that finds a parallel in the languages of other American tribes (that of the Omahas for instance) and of other primitive races—that in Nahuatl no verbal distinction is made between the colors blue and green. One was evidently deemed a shade of the other color—a conception that we can perhaps understand when we consider how frequently, as in describing marine and alpine scenery, we are forced to resort to the composite terms blue-green and greenish-blue which proves our unconscious but analogous recognition of an indissoluble connection between these colors. The list an-

xiuitl. On being elected to supreme power Tizoc, Ahuizotl and Montezuma were in turn invested, according to Tezozomoc, with the royal cloak made of blue network called Xiuhayatl, with a blue loin-cloth = maxtlatl, and blue sandals = xiuhcactli, and the diadem inlaid with turquoises = xiuhuitzolli. When the corpse of Tizoc was prepared for cremation it was first laved with blue water and covered with a blue vestment. His face and those of the singers in attendance during the ceremony were painted and marked with blue (*op. cit.*, pp. 438, 455, 460, 573). Clavigero mentions, moreover, a white and blue cloak, called xuihtilmatl, worn exclusively by the "kings of Tenochtitlan," in the interior of their palaces (*op. cit.*, p. 203). Numerous examples in the Atlas Duran show this as edged also with a scarlet pattern.

The explanatory reason of the privileged use of blue raiment by Montezuma and his predecessors lies close at hand and is intimately connected with the foregone conclusions. According to the well known myth, *Huitzilopochtli* came to the world with his limbs painted blue, carrying a blue shield and a blue arrow in his hand (Sahagun, book III, chap. I). This, and a number of further allied details, the enumeration of which I will spare the reader, attest the consecration of azure to that deity and thus explain its constant employment in articles used in ceremonial observances in his honor.

In connection with Montezuma's privileges as high priest, the living image of the god, it is important to compare on the one hand the express statement that "the teoxiuitl was called the turquoise of the gods and that no one had a right to possess and use it but that it had always to be offered to the gods" (Sahagun, book XI, ch. VIII), with the numerous records that Montezuma habitually wore a turquoise necklace and a diadem inlaid with the same precious stones (Sahagun, book VIII, chap. XII).

Although I must defer offering a full and comprehensive state-

nexed affords us an interesting opportunity of taking a glimpse of the world of color from an Aztec point of view.

Xiuitl = turquoise, grass, leaf (by extension a year).

Xiuhcactli, adj., = blue, color of turquoise.

Xiuhcaltic = } verdure.

Xiuhcaltic = } to cover itself with green, as a field or tree.

Matlalli, noun, Matlatic, adj. = dark green or very pure azure.

Xoxouhqui = green, light blue.

Texutle, Texotli = blue, azure.

Texoxoctli = a green stone.

Ilhuictl = sky (a day and a feast).

Ilhuicaatl = ocean = literally sky water.

ment of my belief respecting Montezuma's true position in the much misunderstood social organization of Ancient Mexico,¹ I consider the foregoing facts sufficient to establish that the Vienna headdress, on account of its shape, coloring and attributes, could have been fitly worn by no other person but Montezuma at the time of the Conquest. As living representative of the god he alone could assume the emblem of Huitzilopochtli, the gold beak. As supreme chief he had the sole privilege of wearing a shape the most striking feature of which, be it observed, is a broad band of blue edged with a high middle piece, which simulates, when worn, the familiar royal copilli, as may be seen by a comparison of fig. 15 on Pl. III with the representation, on Pl. I, of the valuable relic. Before endeavoring to trace, in conclusion, by the light of certain historical data, the transfer of the insignia from Mexico to Castle Ambras, a few words may be said about the feathers employed in its manufacture.

Aided by the Custos of the Imperial Vienna Zoological Museum, Herr von Pelzeln, Professor von Hochstetter sought, by comparison with the feathers of birds inhabiting the tropical region of America, to identify the species which supplied the material for the blue and scarlet bands.² This was avowedly a difficult undertaking as very numerous species of tropical birds of all sizes exhibit in various parts of their bodies feathers of these colors scarcely distinguishable from each other by the most practised ornithologist. Moreover the antiquity of the feather-piece and the indeterminate changes time may have wrought in it, detract from the certainty of identifications necessarily based upon most delicate differentiations of structure and color.

To arrive, in spite of these difficulties, at approximate identifications it seemed to me important to narrow the field of ornithological inquiry to the smallest possible limits and to allow these to be fixed by the high authority of Padre Sahagun, who devotes a whole chapter to the description of the birds most highly esteemed by the Aztecs on account of the beautiful feathers they yielded for the manufacture of feather-work. Precious above all were the tail-feath-

¹ I would mention here, however, my high appreciation and hearty endorsement of the general outlines of the Aztec civilization traced by Lewis H. Morgan and Ad. F. Bandelier, in their valuable works.

² "Originally the blue bands were composed of feathers from the *Cotinga maynana* (Linn.), a bird which belongs to the family of the Chatterers and lives in South American virgin forests (Upper Amazon)," *op. cit.*, p. 11. "The best match to the feathers of the scarlet band seemed to us those of the *Hæmatoderus militaris* (Lath.) from Guiana and Northern Brazil" (*op. et loc. cit.*).

ers of the Quetzaltototl; indeed their name Quetzalli, employed in a figurative sense, came to signify all that was precious = treasure, jewel, father, mother, beloved child, lord, ruler. Among the annual tributes paid to Montezuma by the inhabitants of the present state of Oaxaca, Chiapas, on the confines of Guatemala, we find 5,680 bunches (manojos) of quetzal tail-feathers pictorially recorded, an enormous tribute when we consider that two such feathers represent a single bird. It is known, however, that the Ancient Mexicans bestowed the greatest care on the preservation of the lives of all birds of precious plumage. They were caught and plucked and freed at certain seasons. The extensive aviary in Montezuma's "palace" was constantly supplied with living specimens. A number of Indians, men and women, administered daily to each want and bestowed special care on the raising of young broods (Bernal Diaz, *loc. cit.*, p. 240). The manufacture of feather-work was carried on in the same building and it is probably within its walls that the Vienna feather-piece was created. The importance attached to the quality of the quetzal feathers supplied is further evident by the recorded stipulation made by the Aztecs who had conquered the Huastecans, that the feathers they were to pay henceforth in tribute were to measure an arm's length each.

Next in value to the quetzal ranked the Tlauhquechol,¹ the *Platalea aj-aja*, or roseate spoonbill, deemed of such consequence that its annual migration from Florida and regular reappearance towards the months of October and November caused a month in the Aztec Calendar to be named from it and this season to be specially dedicated to the chase. This bird is remarkable for its beautiful rose colored or bright red plumage and the silky tuft on the lower forepart of its neck. It is interesting to place side by side two records based on close observation of the habits of this bird; one the belief of a semi-civilized people, the other the statement of a nineteenth century naturalist. "They (the Indians) say that the tlauhquechol is the prince of the herons and that wheresoever the herons see such a one, they flock about it." (Sahagun, book xi, chap. 11). "This beautiful bird (the roseate spoonbill) is usually

¹From Tlanitl = red ochre. Quechtili = neck, shoulders. This bird was also called the Teoquechol or Tlapalaztatli = red heron (Tezozomoc, p. 434). The "kind of a bird, with long legs and red body, wings and tail" seen by Bernal Diaz in the large pond of fresh water provided in Montezuma's aviary for aquatic birds, was evidently the Tlauhquechol, although he says that "he did not know its name" (*op. et loc. cit.*).

fond of the company of our different herons, whose keen sight and vigilance are useful to it in appraising it of danger and allowing it to take flight in due time" (J. J. Audubon, "The birds of America," vol. VI, p. 73, New York, 1856).

In Tezozomoc (p. 495) this bird is mentioned as specially consecrated to Huitzilopochtli. Montezuma is described by the same writer as going to battle with a device made of feathers, surmounted by a Tlahquechol, which looked as though it were flying (pp. 584 and 599). He wore also another device called tlahquecholtzontli or "hair of tlahquechol feathers" which hung down the back and probably resembled fig. 20, Pl. III. Sahagun describes a helmet, used by the lords only in war, made of the scarlet feathers of the tlahquechol, around which was a crown of rich feathers. Above these rose a bunch of beautiful quetzal feathers like plumes (book VIII, chap. XII).

In the Mexican calendar the month Quecholli is either designated by a representation of this bird (Atlas Orozco y Berra, pl. XVIII), or by an ornament, the use of which was restricted to Montezuma and his predecessors, made of the long silky recurved feathers from the neck-tuft of the spoonbill.¹ Herr Hofrath Dr. A. B. Meyer, Director of the Royal Zoological and Ethnographical Museum at Dresden, to whom I am obliged for the active interest taken in the present investigation and the facilities for study afforded me, identified the Tlahquechol as the *Platalea agaja* from the fragmentary descriptions I collected from the writings of old Spanish authors² and kindly furnished me with feathers for comparative purposes from a stuffed specimen in the Museum. These answered exactly to the description given by Herr von Hochstetter of the feathers com-

¹ Gemelli Carreri, Voyage autour du Monde Paris, 1719, p. 68, plate.

² In addition to the above quotations see Sahagun trad. Siméon, p. 71, note, and p. 208. Torquemada, vol. II, pp. 28, 299. Clavigero, pp. 31, 185. I was led to collect these passages through Señor Antonio Penafiel's statement in his recent valuable contribution (Nombres Geográficos de Mexico, Mexico, 1885, on p. 167) that "according to the late Orozco y Berra, the quecholli was the "madrugador" consequently the *Tirannus vociferans*." Wishing to obtain the English name of the *Tirannus* and further details, I applied to Herr Hofrath Dr. Meyer who informed me that no red feathers existed in the plumage of this bird. On referring by chance subsequently to Orozco y Berra's Historia Antigua de Mexico, Mexico, 1880, vol. II, pp. 39 and 85, and then to his ensayo de Descifracion, Anales del Museo Nacional Mexico, 1877, tomo I, pp. 297 and 326, I was much surprised to find not only no mention whatever of the "madrugador" but the following quotation by the late Orozco y Berra from an article written by Señor Don Jesus Sanchez, the present Director of the Museo Nacional, in "La Naturaleza tom. II, p. 250. "The Tlahquechol of the Aztecs was the rose colored spoonbill (*Platalea agaja* Linn.)."

posing the scarlet band of the Vienna head-dress, being extremely fine with disunited barbs of blood red color and light ground. Herr Custos Heger obligingly compared these examples with the feathers of the Vienna relic and communicated to me that "although there was a slight difference in tint the general structure of the feathers lead to the inference of their probable identity." If confirmed by the microscope this identification will commend itself by its perfect accordance with the foregoing evidence as to the privileged use of Tlahquechol plumage by Huitzilopochtli and Montezuma.

Next in value to this beautiful bird Padre Sahagun ranks the xiuhquechol, a small bird with green plumage, like grass, and blue wings and tail. The word xiuitl, in its name, may therefore signify both turquoise and grass. This bird was supplied in tribute by the inhabitants of the coast along the gulf of Tehuantepec as well as the equally prized xiuhtototl = turquoise bird, of the size of a jay with a brown breast and blue back and light blue wings. The tail-feathers are variegated blue, black and green. It was impossible to base an opinion as to the species of these birds on the meagre descriptions available, nor have I been able to find any published identifications in the works on Mexico at hand.

Two hundred skins of the xiuhtototl were paid in tribute every eighty days by the inhabitants of Xoconochco in the present state of Chiapas, on the Pacific coast. They also supplied, at the same time, eight hundred bunches of blue feathers from the same bird (Cordillera, Cortés, ed. Cumplido). In the text to Plate 47 of the Mendoza Collection eight thousand handfuls of precious turquoise blue feathers are recorded as part of the annual tribute sent from twenty-two localities in the Tierra Caliente. As the same tribute list also shows us, such small feathers were transported in bags of fine matting made of palm. The plumage of the xiuhtototl is also designated as consecrated to the service of Huitzilopochtli (Tezozomo, 495), and shields decorated with feather-work made of xiuhtototl plumage are enumerated among the insignia used by the lords in war (Sahagun, book VIII, chap. XII). Herr von Hochstetter comments upon the extreme delicacy of the feathers which originally composed the turquoise blue band of the Vienna relic, a quality in accordance with the diminutive size of the xiuhtototl and the high value placed on it by the Mexican artisans.

We will now revert to the priceless gifts sent by Montezuma to

Cortés in the spring of 1519, the choicest of which were subsequently set aside for Charles V and intrusted to Alonso Hernandez Puertocarrero and Francisco de Montejo, who sailed from San Juan Ulna for Spain on the 26th of July, 1519, according to Bernal Diaz; on the 16th, according to Cortés in his "Segunda Carta." After undergoing seizure and detention the presents and the letters announcing the discovery and addition of a strange, new and rich country to the Crown of Spain were presented to the young Emperor at Tordesillas in the beginning of March, 1520, while he was on his way to Coruna to embark for Flanders. In these days it seems strange to find no reference in the autobiographical commentaries¹ of Charles V, in his record of the events of this and the following years, to what has been termed by Sandoval "one of the happiest pieces of intelligence ever received by the Prince."² It has been reasonably conjectured that Charles V took the costly gifts with him to Flanders where he was expected by his brother, the Infante Ferdinand, and his aunt Margaret of Austria Regent of the Netherlands, both perhaps eager to view the rumored marvels from the new world. Some were doubtless placed as trophies in the Arsenal de la Cour of the palace at Brussels; for as late as 1803 among the trophies and historical armor of the Brussels collection are enumerated "complete suits of armour of Montezuma, his two sons and prime minister" sent by Cortés to Charles V. As Señor Ortega justly remarks, the presence in Flanders of these Mexican trophies dating from the time of the Conquest can be traced back with some certainty to this voyage of Charles V as the gifts afterwards sent by Cortés in 1522 were stolen, and those brought by Diego de Soto in 1524 doubtless remained in Spain as they reached the Emperor while he was making a stay in that country prolonged until 1529.³ The first gifts which reached Charles V consisted of those sent to Cortés shortly after his landing in Mexico, by Montezuma. Saha-gun hands down a description stating that foremost among these were the priestly vestments of Quetzalcoatl "part of which consisted of a large tall crown full of precious, long, very beautiful feathers" (book XII, chap. IV). Bernal Diaz records "crests of plumage some with very rich green feathers, and gold and silver" (p. 89).

¹ Charles V Commentaires. Kervyn de Lettenhove, Bruxelles, 1862.

² Sandoval. Vida y hechos del Emperador Carlos V. Barcelona, 1625, lib. IV.

³ The above data are from Señor A. Nuñez Ortega's interesting article entitled "Apuntes historicos sobre la rodela Azteca en el Museo Nacional"—Anales del Museo Nacional, Mexico, tomo III, p. 281.

Las Casas, who saw the presents at the same time the Emperor did in Spain, describes "certain large feather crests made of various kinds of feathers and colours, finished with gold work," also "certain armor (armaduras),¹ which they must have used in their wars, with green and yellow feathers" (*Historia de las Indias*, Madrid, 1876, vol. II, p. 485); also Torquemada (*Monarquía Indiana*, vol. I, p. 389). Referring to the Memoria already quoted from, we find "a large piece of variegated feather-work which is to be worn on the head. Around it are sixty-eight small pieces of gold each of which is about the size of a medio quarto. Lower down than these there are twenty small towers of gold."²

It may be due only to a striking coincidence that, on comparing this description with the Vienna relic, as figured in Herr von Hochstetter's illustration, we count on the upper row of gold discs on the outer white band (including those on the same band across the middle piece) exactly sixty-eight of these and below, on the blue band, just twenty projections, which can scarcely be more aptly described than as small towers. To infer from the foregoing data the probable identity of the Vienna feather-piece with the large head-dress described as if of special interest and value, would be neither difficult nor unreasonable. At the same time it is well to note that there is no mention in the Memoria of the seemingly noteworthy feature, the gold beak, and that no secure evidence is afforded by the number of gold discs actually present on the Vienna relic.

Our illustration displays the very small number of original discs found by Herr von Hochstetter and adopted as a guide for the restoration of missing ones, and Herr Heger's recent investigation increases the number of gold discs in the outer row to sixty-nine. The only method of reconciling these objections would be to imagine that possibly there may have been originally three rows each composed of sixty-eight discs, for we have no means of judging how completely the objects were described merely for registrative pur-

¹ In a contemporary Spanish document I find the term "armaduras de cabeza" used to describe the helmets with feather crests worn by knights in Spain. *Colección de documentos inéditos*, vol. I, p. 158.

² "Una pieza grande de plumajes de colores que se pone (que se ponen) en la cabeza en que hay à la redonda de ella (à la redonda de el) sesenta y ocho (setenta y ocho) piezas pequeñas de oro, que sera cada una (que sera cada una tan grande) como medio quarto, y debajo de ellos veinte torrecitas de oro (y mas bajo de ellas veinte torrecitas de oro.) *Colección de Documentos inéditos para la historia de España*, tomo I, paja 464.

poses in the Memoria. The gold beak is mentioned last in the Ambras Inventory of 1596, therefore it seems to have been considered only a secondary feature.

From the foregoing data respecting the insignia worn by Quetzalcoatl, the high priest of Huitzilopochtli, we know that the gold beak must have formed part of the large tall crown "full of precious long feathers" sent to Cortés by Montezuma.

On account of the mention of "little towers" in the Memoria I have endeavored to ascertain, but without success, whether the architectonic design on the Vienna feather-piece could have been intended by its native makers to represent a series of towers, and whether, like the arrows on the head-dress behind the Bilinek warrior, these might have some symbolic connection or meaning. Although the high white towers of Mexican architecture are repeatedly mentioned by the Conquerors, I have found no detailed description or representation of them and therefore present for comparison only a small native drawing of a house (Pl. I, fig. *h*). If we had means of ascertaining whether the writers of the Memoria chose the expression "little towers" merely as an apt term of comparison, as I did in describing what I conclude to be merely a symmetrical and meaningless design, then an interesting certainty might be obtained. In the absence of this knowledge we can merely point to a possible identity supported by a mass of corroborative evidence.¹

There is no difficulty presented in accounting for the transfer of the curious head-dress from the possession of Charles V to that of his nephew the Archduke Ferdinand of Tyrol; for the latter's father Ferdinand, who became Emperor of Germany after the abdication of Charles V in 1558, was a lover of all that was rare and curious and laid the foundations of the Austrian Court collections.² It is but reasonable to suppose that Ferdinand, the brother whom

¹ In a catalogue (bearing no date) of the presents sent by Cortés and recorded as having been retained in the Azores and lost, we find described "a helmet with an eagle's beak made of gold, worked with various designs with gold work. The ground is of blue feathers and the rest is of long green feathers" (Colección de documentos inéditos, tomo XII, p. 347). We find that no better description of Huitzilopochtli's symbolic head-gear and the Vienna relic could be written than this, and are even led to surmise that these presents did eventually reach their destination. These gifts presumably consisted of those given to Cortés by Montezuma on his arrival at the capital. In Tezozomoc we find the custom recorded of the chiefs presenting honored guests with their own garments and insignia.

² See F. B. von Bucholtz, Ferdinand der I, Wien 22, 1838, vol. VIII, pp. 695 and 750.

Charles V used to term "his other self," should have shared the trophies from the New World, and that at his demise in 1564 and subsequent division of his possessions between his three sons, some of them should have been claimed by that ardent lover of curiosities, the Archduke Ferdinand.

Reverting once more to Dr. Hirn's valuable biographical work, we may quote a few passages illustrating the extent of the systematic and persevering efforts made by the Imperial connoisseur to obtain additions to his collections.¹ "The nucleus of his magnificent collection consisted of his own numerous suits of armor and those of the members of his family. It was naturally easy for him to obtain the armour formerly belonging to Sigismund and to the Emperor Maximilian I and Ferdinand I. True to the aim of the collection he attempted to procure a certain coat of mail which had been worn by his uncle Charles V, but was then in the possession of Philip II. Ferdinand directed his minister Khevenhüller in Madrid to endeavour to procure it, but Philip was loth to part with the precious souvenir and thus the matter ended."

The Archduke's solicitations at the courts of Italy (Florence, Ferrara, Mantua and Turin) were most successful. The Imperial ambassador in Venice took special pains to obtain additions for the Ambras Armory. A certain Anger Busbecq assembled a number of trophies in France and sent them to Tyrol in 1585. Additions came from the Netherlands and Bavaria, Hungary and Turkey. "In this manner the celebrated collection grew. The longing eyes of its founder looked in every direction but he could not of course obtain all he strove for."

But what was within the Archduke's reach, and of twofold interest to him by reason of family connection, could well have been a complete suit of Mexican armor chosen from among the presents sent by Cortés to Charles V. And considering his special desire to possess none but armor certified as having belonged to celebrated historical personages, it is in his collection we may seek for the most carefully chosen and authentic personal relics of Montezuma.

The Inventory of 1596 proves that in this respect the Imperial collector did not belie his reputation or neglect his rare opportunities; for in it there are enumerated, in addition to the head-dress

¹ *Op. cit.*, vol. II, pp. 421, 449, 502 and 512.

and the stone axe reputed to have belonged to Montezuma, "a shield in feather-work, a costly fan, a tuft of feathers curiously worked (probably a device or banner), and a notable coat. This is described as made of blue feathers and as having around it and about the sleeves, a trimming of red and yellow feathers, besides being covered with thin plates or scales of gold."¹ The shape of this coat "with sleeves" was evidently that shown in Duran's Atlas, copied on Pl. III, figs. 2 and 3, as complementary to the tall head-dress and as exclusively used by the leaders in war; and in color this coat matched the head-dress² and these colors were, as we know, those worn by no other but Montezuma. It is my belief that documentary records, beyond my present reach, will furnish additional evidence certifying that authentic relics of the unfortunate Montezuma were conveyed to Castle Ambras.

We may here state in regard to the celebrated stone axe mentioned in the Inventory, and now preserved in the Vienna Museum, that recent investigations and comparison proved it to be indubitably of Brazilian origin. Hence Herr von Hochstetter's conclusion "that the Mexican origin of Montezuma's celebrated stone axe is more than doubtful and that we can well assume that this axe, if really procured by Cortés in Mexico, must have reached Montezuma's hands either as a present or trophy from a Brazilian tribe" (*op. cit.*, p. 24). I would further call attention to the fact that this axe did not reach the Ambras Collection from the same source as the rest of the objects above enumerated. I have found the record that it was presented with a group of miscellaneous curiosities of European manufacture by Count Hannibal von Hohenems³ who, out of gratitude for a magnificent present received and "knowing the archduke's passion," wished to make an appropriate return. It is not known from what source Count Hannibal derived this axe, nor upon whose authority it was endowed with those historical associations which alone would gain its admission to the Ambras Collection. Two important facts, however, are evident; one is, this axe does not possess the guarantee for its authenticity and antecedents that would exist had it really been sent, as erroneously

¹ F. von Hochstetter, *op. cit.*, pp. 7 and 8.

² Reference to the list of tributes in the Mendoza collection will prove that in the twenty-three representations of such tall head-dresses, and their complementary suits, these invariably match each other in color.

³ Hirn, *op. cit.*, vol. II, p. 439.

recorded, by the Pope to the Archduke and that there is no need to trace it to Montezuma at all. The other is that it would seem as though the fact that it had belonged to Montezuma would make it specially acceptable to Ferdinand. The reason for this may be surmised to be that it completed the military equipment of the historical Mexican chief, already preserved at Ambras.

I will now briefly formulate my final conclusions respecting the Vienna feather-piece based on the foregoing collective evidence.

The testimony of native Mexican paintings and sculpture and of early Spanish records taken into consideration with the evidence furnished by its structure and also by the appellation bestowed upon it in the Inventory of 1596 indubitably prove the Vienna feather-piece to be a head-dress.

Manufactured with the utmost care, of materials most highly esteemed by the Mexicans, uniting the attribute and emblematic color of Huitzilopochtli, fashioned in a shape exclusively used by the hero god's living representative, the high priest and war-chief, this head-dress could have been appropriately owned and disposed of by Montezuma alone at the time of the Conquest, from which period it assuredly dates.

The fact that in 1596 this head-dress was in the possession of a nephew of Charles V renders it more than probable that it had figured among the presents sent to the Emperor by Cortés while the agreement of certain of its details with an entry in the "Memoria" of the gifts sent in 1519 indicate its possible identity with the head-dress therein described.

I am most desirous of expressing in conclusion the reluctance with which I have found myself obliged to criticise some of the statements published by the late Herr von Hochstetter in his interesting memoir. Had this been avoidable, I would gladly have omitted to do so out of respectful recognition of the devoted enthusiasm he displayed in rescuing, preserving and studying all facts connected with this relic.

To judge from the record of this distinguished scholar's life, so nobly spent in the pursuit of scientific truth, I am led to believe that had my essay appeared in his lifetime the fact that it contradicted some of his opinions would not have deprived it of his generous recognition as an honest and painstaking, though imperfect endeavor.

APPENDIX.

ON THE COMPLEMENTARY SIGNS OF THE MEXICAN GRAPHIC SYSTEM.

IN a preliminary note made by me in August, 1886, I made the statement that "I had discovered certain determinative signs that render a misinterpretation of the Nahuatl picture-writings impossible.¹ In this announcement I adopted, in connection with certain signs, the adjective "determinative" on account of its current meaning "having power to determine." I did not realize at the time that by so doing I became liable to misconstruction, as the constant use in Egyptian hieroglyphs of the appellation "determinative signs" with a restricted sense has identified this term with a single specific significance. Moreover, the term "determinative" has been employed by such prominent writers on the Mexican graphic system as Orozco y Berra, Señor José Vigil, Señor Antonio Peñafiel, and others, with differentiations of meaning removed from that I wished to express.

In connection with the attempted decipherment in the foregoing essay I am afforded a welcome opportunity of making a brief but more explicit statement, accompanied by a few illustrations, of the character of the Mexican signs whose systematic occurrence and incalculable value when presented with new decipherments as a proof of their correctness I believe I am the first to observe upon. It is far from my intention to place undue importance upon this discovery. Future years of research and close application and the coöperation of fellow students can alone test and reveal its true value. At the same time the mere recognition of even the restricted occurrence of these signs and of their systematic employment and possible value marks some advance in what often seems a hopeless direction.

It is due to valuable information kindly communicated to me by

¹Preliminary note of an analysis of the Mexican Codices and Graven Inscriptions. Proceedings of the American Association for the Advancement of Science, vol. xxxv, Buffalo Meeting, August, 1886.

the eminent philologist and Egyptologist, Dr. Carl Abel, that I have been able to ascertain, by comparison, the equivalency of the signs in question with what are termed in Egyptian hieroglyphy "complementary signs" or complements: German; *Ergänzung*, *Ergänzungszeichen*: French; *complément*, *complément phonétique*.¹

It is obvious that the Mexican complementary signs, like the Egyptian, must have arisen from the endeavor to avoid misinterpretation and their existence proves perhaps the attainment of a higher stage of development in the Aztec graphic system than has been hitherto admitted. The Mexican complement differs from the Egyptian inasmuch as the latter "is never a syllable but always a single letter, a circumstance sufficiently accounted for by the original brevity of Egyptian words." The characteristics of the Nahuatl language explain equally the reason why the Mexican complement may be either a single vowel, a monosyllable or dissyllable.

In selecting illustrative examples I have taken pains to choose only hieroglyphs of well-known signification from familiar and accessible sources. Although these hieroglyphs have been repeatedly analyzed and deciphered and the presence in one instance noted of what will be shown to deserve the name of complementary signs, it seems that the extent to which these were employed and their great value, if adopted as a test of the accuracy of new decipherments, have been entirely disregarded. The accepted meaning of figs. 10a, b, Pl. II, is that each expresses the name of a tribe = Acolhua, or of the province = Acolhuacan. In both hieroglyphs an arm

¹I am indebted to the same high authority for the following facts relating to the Egyptian complements.

"The phonetic addition was discovered but erroneously regarded as forming part of the original system of writing by Champollion. Rosellini, Lepsius and Seyffert having defined the purely ideographic nature of the original hieroglyphs, Rougé in his *Introduction à l'Étude des Écritures et de la langue Égyptienne* (1869) was probably the first, or at least one of the first, who applied the term complement. Birch's *Grammar in Bunsen's Egypt* (1867) does not yet contain the term.

Complements of this nature occur in the earliest as well as in the latest records known; the earliest records contain the entire hieroglyphical system perfectly developed in this, as well as in nearly every other respect.

The addition of phonetic to syllabic signs must have arisen from fear of misinterpretation. Syllabic signs giving the sound of their respective words admitted of various pronunciation in a language with few ideas and many words for every idea. When therefore, from original ideograph they became purely syllabic and figured as mere syllables in the rendering of other words disconnected with the things they represent, the desirability of a phonetic complement must have obtruded itself at once. Many syllabic hieroglyphs continued polyphonous to the end of the chapter just as in cuneiform."²

and hand are painted, which might express either *Maitl* = arm in general, also hand, or *acoli* = shoulder. Above the arm the conventional sign for water, = atl, is painted, yielding in composition the phonetic value *a* which is also the first syllable of the word *acoli*. The sign of water is in this case the complement; it indicates that not *maitl* but *acoli* is meant to be expressed by the painted arm, and duplicates thus the first syllable = ^aacoli.

A similar use of water is made in the hieroglyph for *Apanecatl* already alluded to in the preceding essay (Pl. II, fig. 8). In it is represented that which I believe to have been shown to be a head-dress = ^{apan}apanecatl, above = pan, water = a = ^{apan}apanecatl. In the Mexican graphic system there are familiar instances of a single word being expressed by a different set of signs conveying the same sounds. In the manuscript *History of Mexico*, dated 1576 (thus fifty-five years after the Conquest) we find above the figure of the second historical personage, a hieroglyph (Pl. II, fig. 14) consisting of ^{pan}pantli = banner, pan = above, a = water = ^{apan}apan, as shown by the annotation = apane written next to this hieroglyph in the manuscript; the name is but incompletely expressed in this case.

An interesting example is furnished by a hieroglyph representing the month *Atemoztli* of the Mexican calendar (fig. 12, Pl. II). It contains a divided, elongated representation of water between which footsteps are painted. Such footsteps were constantly employed to express a multitude of meanings, according to the position in which they were placed.¹ The necessity for an indication as to which of many words the footsteps were, in this case, to convey is evident and this indication was furnished by the native scribe who added the complement a stone = tetl = te ^{te} gives the first syllable of the verb *temo*, to descend, in the name *atemoztli*. A parallel example to this is given by Señor Orozco y Berra as No. 251, page 5^a of his atlas, and in the accompanying text he moreover states, "In order to make the reading evident the sign tetl accompanies the footsteps and gives the initial syllable (of *temoc*)."²

Recognizing as he did the presence and even the purpose of the sign tetl in one instance, it seems strange that this thoughtful wri-

¹ See Orozco y Berra, *Historia*, vol. I, chapter V, on the *Escritura jeroglífica*.

² *Op. cit.*, vol. I, p. 475.

ter, whose work on Ancient Mexico is a fund of valuable information, overlooked the recurrence and general value of such signs, not only as affording, when present, a guarantee for the correctness of new interpretations, but also as marking a step of the development of the Mexican graphic system.

It is an interesting and significant fact that but 366 years ago the Mexicans in their elaboration of a method of writing had attained, but not yet perfected, a system of complementary signs such as was in finished use in Egypt over 6000 years ago.

PLATE I.

- Fig. 1a. Front view of the feather-piece in the Vienna Museum, after Hochstetter, but with rectified proportions.
The shaded circular gold plates are the only genuine ones.
- 1b. View of the back, showing network and supports, according to Hochstetter.
- c, d, e, f, g. Details of gold ornaments, about two-thirds natural size, according to Hochstetter.
- h. Conventional representation of a house from Codex Telleriano Remensis.
2. Diadem of thin gold represented in the Mendoza Collection, part II, pl. 48 (Kingsborough, vol. I).

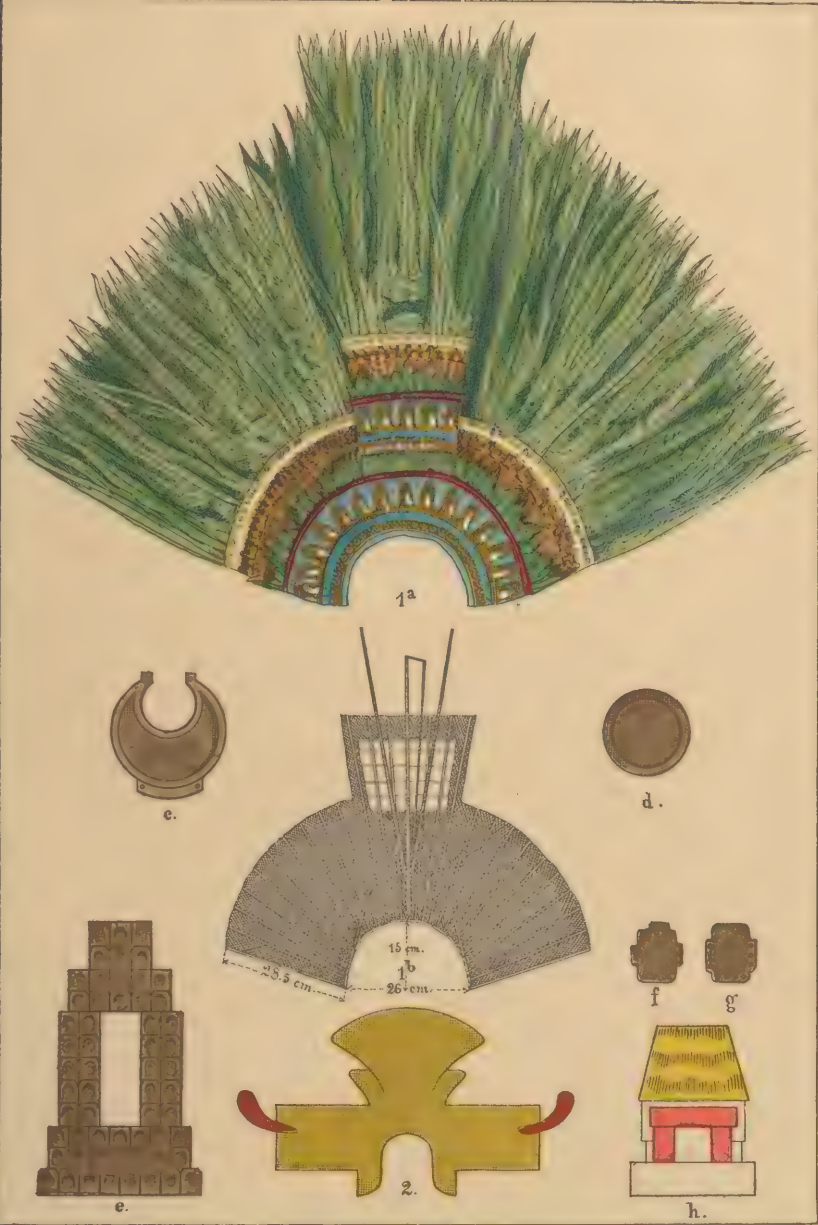


PLATE II.

- Fig. 1. Group of warriors showing method of carrying banners. Atlas Duran, part I, pl. 30.
2. Standard of the net. Mendoza Collection, part III, pl. 68.
3. Common form of banner. Mendoza Collection, part III, pl. 68.
4. Military equipment, consisting of dress and unmounted banner "river of gold." The small flag represents the numeral 20 and is placed here in order to show the usual way it was used. Cortès, Historia ed. Lorenzana.
5. Standard. Mendoza Collection, part III, pl. 60.
6. Standard with framework affording means of attachment. Mendoza Collection, part II, pl. 48.
7. Mexican warrior, from oil-painting in the Bilimek Collection, Vienna, after Hochstetter.
8. Figure with Hieroglyph representing the word Apanecatli, from MSS. of Boturini Collection (Kingsborough, vol. I).
9. Head with Hieroglyph, from Mendoza Collection, part I, pl. 17.
- 10a. Hieroglyph. Mendoza Collection, part I, pl. 22.
- 10b. Hieroglyph. Codex Osuna.
11. Group from original Mexican MSS. Bilimek Collection, Vienna Museum.
12. Hieroglyph of month Atemoztli. Atlas Orozco y Berra, pl. 18.
- 13a, b. Fans. Mendoza Collection, part III, pl. 69.
14. Hieroglyph from a MSS. History of Mexico written in 1576.



PLATE III.

Illustrations of ancient Mexican feather head-dresses and of the mode of wearing them taken from native Manuscripts.—

- Fig. 1. Head-dress from *Historia de Nueva España*, Hernan Cortés, ed. Lorenzana, Mexico, 1770. Cordillera, p. 13.
2. Representation of the head-chief (emperor) Axayacatl in war-costume. *Atlas Duran*, part I, pl. 10.
3. Representation of the head-chief Tizoc, in war-costume. *Atlas Duran*, part I, pl. 13.
4. Representation of the head-chief Itzcoatl in war-costume.
5. Head-dress from *Historia*, Cortés. Cordillera, p. 32.
6. Head-dress from Mendoza Collection (*Kingsborough*, vol. I), part II, pl. 45.
7. Representation of head-chief "Tizoc," in bas-relief around "Sacrificial-Stone."
8. Representation of deified hero Huitzilopochtli, in *Atlas Duran* part II, pl. 1.
9. Warrior in bas-relief, around "Sacrificial-Stone."
10. Head-dress from Mendoza Collection, part II, pl. 28.
11. Head-dress with means of attachment, from Mendoza Collection, part II, pl. 21.
12. Representation of a war-chief, from *Vatican Codex*, pl. 82 (*Kingsborough*, vol. II).
13. Head-dress, with means of attachment, from Mendoza Collection part II, pl. 25.
14. Representation of head-dress with beak over forehead, from *Atlas Duran*, part II, pl. 2.
15. Head-dress of Xiuhtecutli from *Codex Telleriano-Remensis*, pl. 12 (*Kingsborough*, vol. I).
16. Head-dress with beak. *Arch. Selden*, A. 2, p. 20 (*Kingsborough*, vol. I).
17. Head-dress with beak. *Codex Ramirez*, pl. 4, fig. 6.
18. Head-dress with beak. *Bodleian MSS.* p. 35 (*Kingsb.* vol. I).
19. Part of head-dress of Xochiquetzal. *Codex Telleriano Remensis*, part I, pl. 30 (*Kingsborough*, vol. I).
20. Head-dress from *Vienna Codex*, pl. 64 (*Kingsborough*, vol. II).
21. Head-dress from *Vatican Codex*, pl. 39 (*Kingsborough*, vol. I).



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